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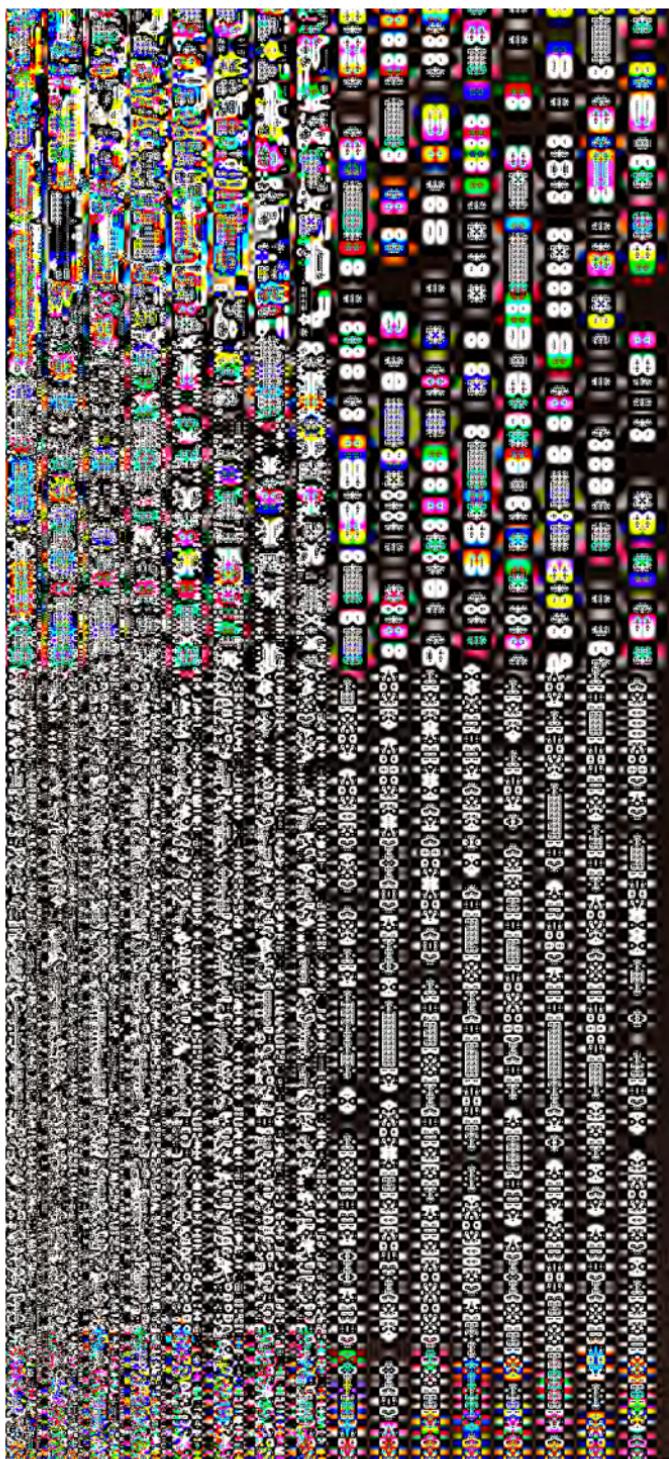
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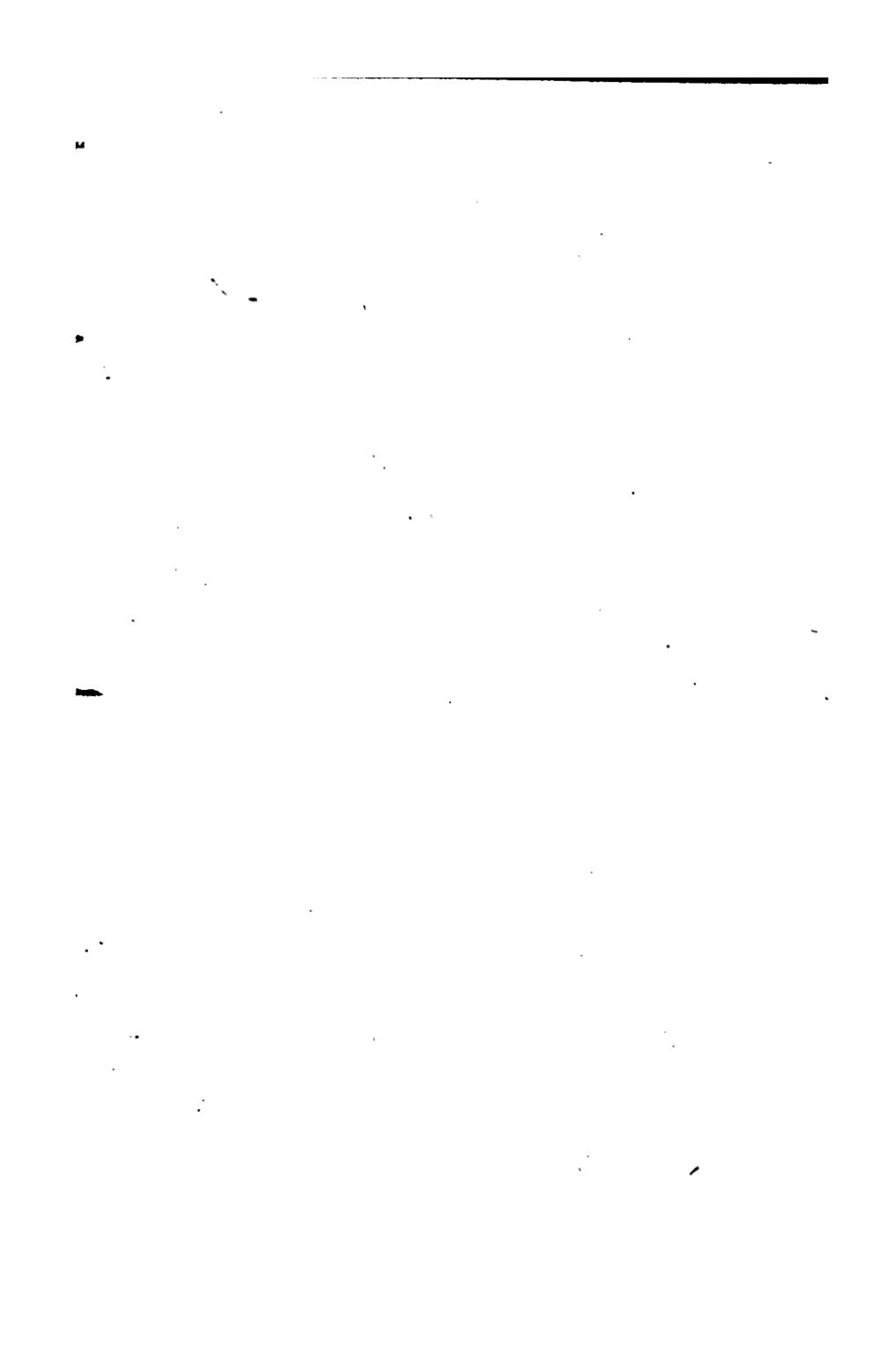
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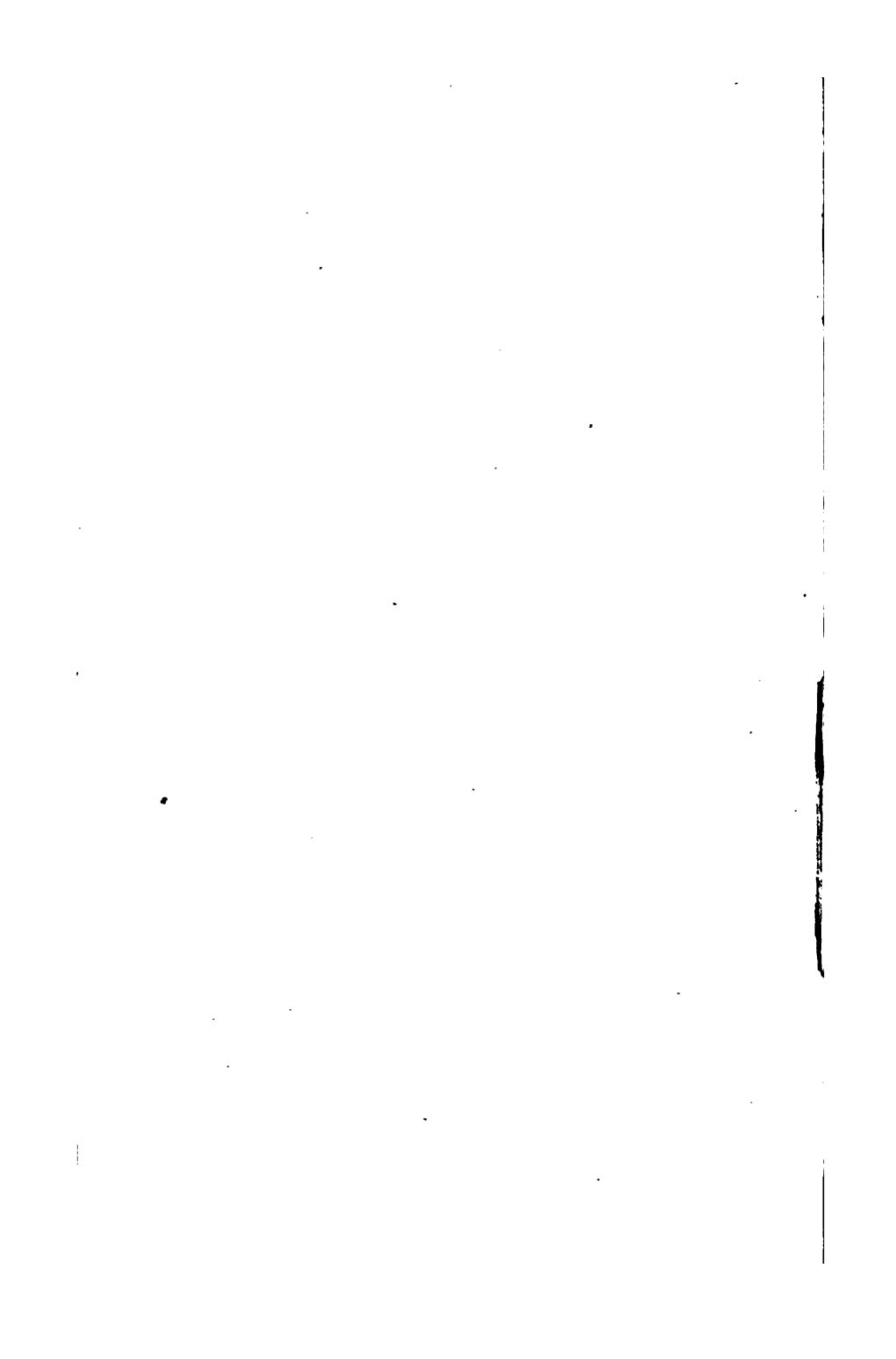
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THE

A M E R I C A N

KITCHEN GARDENER;

CONTAINING

PRACTICAL DIRECTIONS FOR THE CULTURE OF

VEGETABLES.

ALSO,

GARDEN FRUITS, STRAWBERRY, RASPBERRY, GOOSEBERRY,
CURRENTS, MELONS, &c., &c.

Thomas Green
BY T. G. FESSENDEN.

REVISED FROM THE 26th EDITION, AND ADAPTED TO THE USE OF
FAMILIES,

BY A PRACTICAL GARDENER.

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INTRODUCTION.

THE importance and utility of HORTICULTURE, or the art of cultivating those products of the soil which are used in domestic economy, require no elaborate exposition. The greatest blessings which a kind Providence can bestow on man, in his sub-lunary state of existence, are, health of body and peace of mind ; and the pursuits of gardening eminently conduce to these. Gardening was the primitive employment of the *first man* ; and the *first of men*, among his descendants, have ever been attached to that occupation. Indeed, we can hardly form an idea of human felicity, in which a garden is not one of its most prominent characteristics.

Gardening is not only an innocent and healthy, but a profitable occupation. It is not alone by the money which is *made*, but also by the money which is *saved*, that the profits of a pursuit should be estimated. Where a good garden constitutes part of a rural establishment, and the culinary uses of its productions are well understood, the field or the market furnishes a proportionably small part of the provisions necessary for family consumption. "I consider," said Dr. Deane, "the kitchen garden of very considerable importance, as pot-herbs, salads, and roots of various kinds, are useful in house-keeping. Having a plenty of them at hand, a family will not be so likely to run into the error, which is too common in this country, of eating flesh in too great a proportion for health. Farmers, as well as others, should have kitchen gardens ; and they need not grudge the labor of tending them, which may be done at odd intervals of

time, which would otherwise chance to be consumed in needless loitering."

Cowley says of gardening, "It is one of the best-natured delights of all others, for a man to look about him, and see nothing but the effects and improvements of his own art and diligence; to be always gathering some fruits of it, and at the same time to behold others ripening, and others budding; to see his soil covered with the beauteous creatures of his own industry; and to see, like God, that all his works are good."

We shall here state, concisely, some of the principal prerequisites for successful horticulture, directing our observations, chiefly, to what relates to the kitchen garden. Gardens are usually classed under the following heads:—the *kitchen garden*; the *fruit garden*; and the *flower garden*. The flower garden, being designed principally for ornament, should be placed in the most conspicuous part, that is, in front, or next to the back part of the house; the kitchen garden and fruit garden may follow in succession. With respect to the natural situation of a garden, Nicol and Forsyth agree in preferring a gentle declivity towards the south, a little inclining to the east, to receive the benefit of the morning sun. A kitchen garden should not be situated at any great distance from the house, lest, being too much out of sight, it should be out of mind, and the necessary culture of it too much neglected. It should be placed adjoining to a stable, whence the dung may be easily conveyed into the inclosure. It should be sheltered, as much as can be, from the north and east, to prevent the blighting winds from affecting the trees. The best soil for a garden is a sandy loam, two or three feet deep, according to Forsyth; but if deeper, the better. The earth should not be of a binding nature in summer, nor retentive of rain in winter, but of such a texture that it can be worked at any season, when not frozen, without difficulty.

A garden should have a close fence, that the winds may not drive seeds of weeds into it. The fence should be at least seven feet high, and picketed to prevent the entrance of thieves.

The height and closeness of the fence will increase the vegetation by increasing the warmth of the air in the garden, excepting, perhaps, the parts which are shaded by the fences. The rage of high winds will be so opposed as to prevent the tearing and distorting of tender plants, and fowls may be more easily kept out. The height of walls for training fruit trees, generally approved, is from ten to twelve feet; but it is more commonly determined by the size and form of the garden, and the inclination of its surface. "Many low walls, or stout ranges of paling," Abercrombie observes, "will produce a greater total effect, in accelerating fruit, than the same expenditure in high walls." "Fruit walls, five or six feet high, Hitt remarks, "will do very well for peaches, cherries, vines, and figs; but he would not advise the planting of apricots, plums, or pears, on such walls, they requiring more room, and to stand longer before they bear. Garden walls have been colored white or black, and the latter color is justly preferred as absorbing and refracting more heat than any other, and thereby accelerating the maturity, and improving the quality of fruits."

A copious supply of water is very essential to a good kitchen garden. Loudon remarks, that "Many kitchen crops are lost, or produced of very inferior quality, for want of watering. Lettuces and cabbages are often hard and stringy; turnips and radishes do not swell; onions decay; cauliflowers die off; and, in general, in dry seasons, all the *cruciferae* become stunted or covered with insects, even in rich, deep soils. Copious waterings in the evenings, during the dry seasons, would produce that fullness and succulence which we find in the vegetables produced in the Low Countries, and in the Marsh Gardens at Paris, and in England at the beginning and latter end of the season.

Vegetables that are newly transplanted, as they have their roots more or less diminished, or otherwise injured, often need watering, until they have taken new root. But this should be done with caution. If a dry season follow the transplanting, let them be watered, if they appear to droop, only at evenings, and

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AMERICAN KITCHEN GARDENER.

ARTICHOKE.

Cynara Scolymus.—*Artichaut*, Fr.—*Artischoke*, Ger.

THESE are, according to Loudon, three varieties cultivated—Conical, French, or oval artichoke, with green head. The head is oval, the scales open, and not turned in at the top, as in the globe sort.—Globe, or largest, with dusky, purplish head. The scales are turned in at top, and the receptacle more succulent than the other.—The dwarfish globe, a prolific variety, and valuable as occupying little room with its head. The globe kind is the only one usually cultivated in this country.

In making new plantations, select deep, rich, light loam, not liable to retain much wet in winter, nor to be very dry in summer. Let it have a gentle slope, sufficient to carry off any moisture that might lodge in the trenches between the rows, for that is more injurious to the roots in winter than the severest frost. Lay on a good quantity of rotten dung, and trench the ground eighteen inches deep, incorporating the manure well therewith, and thoroughly pulverizing the ground in digging; then proceed to slip off the young shoots from the mother stools, with all the roots and fibers they may have thrown out, and close the earth about the remaining shoots. These being provided, pull off any loose hanging leaves, and trim the fibers; then plant them with a dibble about four or five inches deep, in rows five feet asunder, and two feet apart in the row, leaving part of their green tops above ground, and the hearts of the plants free from any earth over them; be careful also to give each plant a little water to settle the earth about its roots.

Or, if you have seedling year old plants in a seed bed, you may take them up, and after shortening the tap roots a little, and dressing their leaves, plant them as above.

Subsequent culture.—“All spring and summer keep them clear from weeds, by occasionally hoeing between the plants; this, with regular waterings in

the dry weather of summer, is all the culture which they require, till the season of production has terminated. They will produce some tolerable heads the same year in August, and thence till November; next year they will head sooner in full perfection. By having fresh stools planted every year or two, the old and new plantations together furnish a production of heads from June or July till November. Besides the main head, several smaller lateral heads generally spring from the sides of the stem in succession; but, in order to encourage the principal head to attain the full size, most of the side stickers should be detached in young growths, when their heads are the size of a large egg, which in that state are also prepared for some tables. As to the continuing main heads, permit them to have full growth till the scales begin to diverge considerably, but gather them before the flowers appear, cutting to each head a part of the stalk. When the entire crop on a stem is taken, cut off the stem close to the ground, to give the plant more strength for new shoots."—*Abercrombie*. "To encourage the production of large main heads, some detach all the lateral heads in a young state. These are commonly in a fit state for eating raw, having attained about one third of their proper size; and they are for this purpose frequently sold in Covent Garden market, chiefly to foreigners. Another thing practiced, with the same view, is the shortening the ends of the large leaves."—*Neill, in Ed. Encyc.*

Winter dressing.—*Abercrombie* says, "First cut down all the large leaves, but without hurting the small central ones, or the new shoots. Then dig the ground between and along each row; raising it gradually from both sides, ridgeways, over the roots, and close about the plants. In rigorous frosty weather, cover also in the litter, and close about each plant." *Armstrong* remarks, that "various means have been employed for preserving the outstanding plants during the winter. That which is most commonly used is, after stripping off the dead or decaying leaves, and trimming down the sound ones to three or four inches, to open trenches around the plant, and to draw about it the earth furnished by these. This is again covered with long dung or stable litter, so as entirely to exclude rain, and snow, and frost. But, in making these provisions against cold and wet weather, we must not forget that it is possible to be careful overmuch; for if the mounds of earth and litter be large and close, we expose our plants to suffocation from want of air; to exhaustion from a continued vegetation, and to scorching from the fermentation of the covering matter, which, if the weather be wet, and but occasionally warm, seldom fails to occur.

"To obviate these difficulties, it has been proposed that the mounds be gradually formed; that the first covering be merely a wrapping of long dung, and that the additions made to it be conformed to the weather, leaving openings in all cases, on its southern side, for the purposes of ventilation, and in no case to permit the covering to exceed two feet in thickness.

But even this mode of treatment is not free from objection; for, first, the direct application of the dung to the plant will always alter its flavor, and very much degrade it; and, again, the capriciousness of the weather does not generally give either warning of its changes, or time to accommodate ourselves to them; they often take place in the night, and often (whether in the night or in the day) under circumstances which prevent us from giving the plant the additional covering it may require. Two other methods, therefore, not dissimilar in themselves, have been suggested—the one to employ hollow cylinders of earthenware, covered with a tile or piece of slate, and of capacity sufficient to embrace the plant; the other to form caps of straw (such as are used for lodging bees), and having a movable top of the same material. To the last method we see no room for objection; in application it is easy, requiring no skill and but little labor, while the material and workmanship are both cheap and durable, and their property of excluding rain, snow and frost not to be doubted."

Spring dressing.—“In spring, the litter and earth being removed in March or April (April or May in this country), according to the season, the stocks are examined; and two or three of the strongest or best shoots being selected for growing, the rest are removed by pressure with the thumb, or by a knife or wooden chisel. These shoots, or suckers, are used for new plantations. Dig the whole ground level, loosening it to the crown of the roots of every plant.”—*Loudon.*

Duration of the plants.—“Artichoke plants continue productive for several years; but, every season, some well-rotted dung, or fresh sea-weed, should be delved into the ground at the winter dressing. It is certain, however, that after a few years the plants begin to degenerate, the heads becoming smaller and less succulent. It is therefore a general rule not to keep an artichoke plantation beyond four or, at most, six years. Scarcely any kind of grub or wire-worm ever touches the roots of artichokes; they form, therefore, an excellent preparative for a crop of onions, shallot or garlic. In many gardens, a small new plantation is formed every year; and in this way the artichoke season, which begins in June, is prolonged till November; those from the old stock continuing till August, when those from the new stocks come in. If the last gathered be cut with the stems at full length, and if these be stuck among moist sand, the heads may be preserved a month longer.

Seed.—“The heads, when suffered to remain ten days, or a fortnight after the season of cutting, expand the calix leaves, and display an aggregation of jagged purple florets, producing a fine appearance. When ripe seed is wanted, those heads in flower are to be bent down, and retained in that position, so that the calix may throw off the autumnal rains. In general, however, the seed is not perfected in our [the British] climate.”—*Loudon.* Armstrong says, “Every gardener who understands his trade will take care

to set apart a few of the finest heads of his own crop for seed; but as the stock is upright, and the head so formed as to receive and hold water, it often happens that the seeds rot. To prevent this, the stems of the plants so set apart should be tied to stakes driven into the ground near them, and gradually bent, so as to give to the heads that degree of declination that will be sufficient to carry off the water that may fall upon them."

Use.—In England, the full heads only are eaten, always boiled. In Italy, they eat the young heads raw, with oil, salt and pepper. The stalks are eaten in France and Germany, boiled and seasoned with butter and vinegar. The flowers have the property of rennet, and have sometimes been used as a substitute for that article.

ASPARAGUS.

Asparagus Officinalis.—*Asperge, Fr.—Spargel, Ger.*

Soil.—Asparagus ground should be light, yet rich: a sandy loam, well mixed with rotten dung or sea-weed, is recommended.

Preparation.—A good quantity of dung trenched twelve or fifteen inches below the surface.

Propagation.—It is best to raise this plant from seeds, although the sprouts from seeds will not be fit to cut so soon by a year as from the roots. The seeds should be dead ripe when gathered, and taken from the strongest and most compact shoots.

Quantity of seeds or roots.—If sown to transplant, for a bed four feet and a half wide by six feet in length, one quart of seed will be requisite. If sown to remain, for a bed four feet and a half wide by thirty feet in length, one pint is necessary. If plants a year old are wanted for a plantation, then for a bed four feet and a half wide by thirty feet in length, to contain four rows of plants nine inches distant in the row, one hundred and sixty plants will be requisite. The seeds may be sown as early as the season will permit in the spring, or (according to Cobbett) "three weeks, or about, before the frost sets in" in the fall—and "press the earth well down about the seed; and, as soon as the frost sets in, but not before, cover the ground with muck or litter a foot deep, and lay some boards or poles to prevent its blowing off. As soon as the frost breaks up in the spring, take off the litter, and you will have the plants quickly up."

Progressive culture.—In the month of March or April, (during the whole existence of the plant,) the beds must be carefully forked and dressed, and kept clear of weeds. Occasional waterings are necessary, till the third or fourth year, when the plants will be sufficiently established to do without.

them. Permit the entire crop the first two years, and the greater part of it the third year, to run up to stalks. It is a common practice to sow onions, lettuce, &c. the first two years. Mr. Loudon, however, says, "the advantage of this practice is questionable; and, at all events, it should not be continued after the plants are in full bearing."

Time of cutting.—"If you plant roots, the shoots may be cut the second year after; if seeds, they will not be fit to eat till the third year. All the shoots, which come up before the middle of June, may be cut off without injuring the roots; after which time, the late shoots should be left to run up, and go to seed; otherwise the roots will be weakened."—*Deane.*

Cutting and gathering.—"In new plantations, be careful not to begin cutting till the stools have become mature, or the third or fourth year. Likewise observe, both in old and new beds, to gather all the produce in a regular, successive order, within the proper limits of the season. As the rising shoots project two, three, four or five inches, at most, above the ground, while the top bud remains close and plump, they are in the best condition for gathering. Cut them off within the ground, with a narrow, sharp-pointed knife, or small saw, nine inches long; thrusting the knife or saw down straight, close to each shoot separately, cut it off slantingly, about three inches below the surface, with care not to wound the young buds advancing below. Observe in a new plantation, in the first year's gathering, if the shoots come up of irregular sizes, to cut only some of the larger for a fortnight, or three or four weeks, and then permit the whole to run; but otherwise when in strong production, gather all as they come, two or three times a week, or as required during the season, till the 21st of June; then, at furthest, terminate the cutting, and permit the after-shoots to run up in stalk till October. If, from a particular inducement, you cut later than the 21st of June, be careful to leave two or more shoots to each stool, in order to draw nourishment to it; for the stools left without growing shoots will perish; and, by negligence in this respect, many vacuities or unproductive spots are left in beds."

Shaker method.—"Beds should be made as soon as the ground is clear from frost—the first part of April, in ordinary seasons. The ground must be well worked to the depth of a spade blade, and intimately mixed with rotted horse-manure. The seeds should then be sowed in rows or drills, twenty inches apart, and one inch deep, the rows crosswise of the beds. They should be raked in lengthwise of the rows.

"Asparagus will be large enough to begin to cut the third spring after it is sowed. It may be cut until the 20th June every year afterwards. As soon as the cutting season is over, hoe it over lightly, so as to loosen the soil and make the surface even. Every other year, spread on each bed an inch layer of good yard-manure before hoeing. The tops will now grow to a great size, and mostly seed well. Early in the spring, cut the dry tops close

to the ground, lay them evenly on the beds, and burn them there. Then hoe the beds over, and rake them again. They are then prepared for a new growth.

"Most of the English books recommend breaking up old asparagus beds once in a certain number of years. Some of the Shakers' beds have been cut twenty-five years, and under that course of treatment are as good as they ever were."

BALM.

Melissa officinalis.—*Baume, Fr.*

"The balm is a hardy perennial, with square stems, which rise two feet high or more, furnished with large ovate leaves, growing by pairs at each joint. It is a native of Switzerland and the south of France, produces flowers of a purplish color from June to October." There is a variety with hairy leaves.

Propagation.—"It is readily propagated by parting the roots, preserving two or three buds to each piece, or by slips, either in autumn or spring."—*Loudon*.

Culture.—"Plant the slips or sets in any bed of common earth, by dibble or trowel, and from eight inches to a foot apart, giving water if dry weather. Those of the spring planting will soon grow freely for use the same year; and afterwards will increase by the root into large bunches of several years' continuance, furnishing annual supplies from March to September."—*Loudon*.

Dried Balm.—"Gather when coming into flower, and when the leaves are entirely free from dew or moisture; then dry rapidly in the shade, or better in an oven; and when cool press the herbage into packages, and wrap them up in white paper till wanted for use. Keep the packages dry, and in a close drawer."—*Loudon*.

Use.—"Formerly the balm was held in very high estimation: Paracelsus supposed it to possess virtues, by which human life could be prolonged beyond the usual period. In modern times, however, the properties of this agreeable plant are better understood: it yields, by distillation, a small proportion of an essential oil, of a yellowish color, and a very grateful smell. A few drops of this oil, diluted in a glass of simple water, or strong infusions of the young shoots, drank as a tea, and continued for several weeks or months, have proved of service to nervous and hypochondriacal patients, of a lax and debilitated habit. Either of these liquid preparations, when slightly acidulated with lemon juice, acquires a fine reddish colour, and may

be taken with advantage in dry, parching fevers, as well as in cases of distressing flatulency, attended with eructations, where the first passages have previously been opened."—*Dom. Ency.* vol. i. p. 127.

BEANS.

Phaseolus.—*Haricot*, Fr.—*Schminkbohne*, Ger.

THREE are two distinct species of the bean, which are often confounded by writers on agricultural subjects, to wit, *vicia faba*, garden bean, or horse bean, and *phaseolus vulgaris*, or kidney bean. The want of distinguishing between these two different genera or sorts of plants, may lead to erroneous practices, and consequent detriment to the cultivator.

The *vicia faba*, or garden bean, (often called *English bean*,) is an annual plant, rising from two to four feet high, with a thick, angular stem, the leaves divided, and without tendrils; the flowers white, with a black spot in the middle of the wing; seed-pods thick, long, woolly within, and inclosing the large ovate flattened seeds, for the sake of which the plant is cultivated in gardens. The following varieties are advertised for sale in Mr. Russell's Catalogue, viz.

English dwarfs,	Green nonpareil,
Early mazagan,	Broad Windsor.
Sword long pod,	

"These varieties should be planted as early as practicable in April."

It is said that this kind of bean is propagated to the best advantage in a stiff, moist loam, with considerable proportion of clay. The following are Mr. Loudon's directions for its culture:—

Quantity of seeds.—For early crops, one pint of seed will be requisite for every eighty feet of row; for main crops, two quarts for every 240 feet of row; and for late crops, nearly the same as the early.

Methed of sowing.—"Plant all the sorts in rows, two feet and a half apart, for the smaller or very early, or very late kinds; and three feet for the larger; the smaller beans two inches deep, and three inches distant in the row; the larger three inches deep, and four inches distant in the row."

Transplanting.—Speechly constantly transplants his early bean crops, and considers that this plant may be as easily transplanted as cabbage, or any other vegetable. It is a practice with him to plant beans, alternately with potatoes, in the same row; the rows three feet apart, and the potatoes eighteen inches apart in the row, so that the beans are nine inches from the potatoes. The beans are transplanted, by which means they have the start and

advantage of the potatoes and weeds, and, as they come in early, **may be gathered before they can possibly incommod or injure the potatoes.**

Manual process.—The work of sowing is most generally effected by a dibble, having a thick, blunt end, to make a wide aperture for each bean, to admit it clear to the bottom, without any narrow, hollow parts below strike the earth fully and regularly into the holes over the inserted beans. Or the planting may be performed, occasionally, in drills drawn with a hoe the proper depth and distance as above; place the beans at intervals along the bottom of each drill, and earth them over evenly; which method, though suitable to any kinds, may be more particularly adopted in sowing the early and other small sorts.

Soaking seed in summer.—In planting late crops in June or July, if the weather be dry, it is eligible to give the beans a previous soaking for several hours in soft water; or, if they are to be sown in drills, water the drills beforehand; then directly put in the beans, and earth them in while the ground remains moist.

Subsequent culture.—“As the plants come up, and advance from four to six inches high, hoe up some earth to the stems on both sides of each row, cutting down all weeds. Repeat the hoeing as future weeds arise, both to keep the ground about the plants clean, and to loosen the earth to encourage their growth. In earthing up, great care must be taken that the earth does not fall on the center of the plant, so as to bury it; for this occasions it to rot or fail. After earthing up, stir between the rows with a three-pronged fork. As the different crops come into full blossom, pinch or cut off the tops, in order to promote their fruiting sooner in a more plentiful production of well-filled pods.”—*Abercrombie.*

Nicol says, “Topping is unnecessary for any but the early crops; being practiced to render them more early.” Mr. Armstrong is of opinion, that “of this practice, and of the theory on which it is founded, we may be permitted to doubt, because it does not appear to follow that, when the growth of a plant is checked or suspended in one direction, it will not exert itself in another as injuriously to the crop as any increased length of stem would have done. Every day’s experience shows, that, if we pollard an apple-tree, we indeed stop its growth upward; but that, instead of sending its surplus juices to the support and enlargement of the fruit, (as this practice supposes,) it hastens to throw out lateral stems or suckers, which give no fruit whatever. Our creed, therefore, is, that, in the vegetable economy, certain juices go to the production of the stem, and certain others, more elaborated, and of a different quality, to that of flowers and fruits, and that, whether desirable or not, the art of giving to either a destination different from what nature intended, is yet to be discovered.”

Gathering.—For table use, gather only such as are tender, the seeds decreasing in delicacy after they obtain about half the size which they should possess.

at maturity. When they become black-eyed, they are tough and strong tasting, and much inferior.

To save seed.—“Either plant some of the approved sorts early in the spring, wholly for that purpose, or leave rows of the different crops ungathered, in preference to the gleanings of gathered crops. The pods will ripen in August, becoming brown and dry, and the beans dry and hard; then, pulling up the stalks, place them in the sun to harden the seed thoroughly, after which thresh out each sort separately.”—*Abercrombie*.

Use.—Mr. Cobbett says, “In England there are some sorts of this bean used for horses and hogs; but there are several sorts used as human food. It is at best a coarse and not very wholesome vegetable, yet some people like it. It is very much eaten by the country people, in England, with their bacon, along with which it is boiled.” Bean flour, as Dr. Darwin observed, is probably more nutritive than that of oats, which appears by its effect in fattening hogs; and, from the relative prices of these articles, he was of opinion, that peas and beans, in general, supply a cheaper provender for horses and other animals. But as the flour of beans and peas is more oily than that of oats, it must be more difficult of digestion. Hence, when a horse has been fed with pulse, he will be less active for an hour or two afterwards, than if he had eaten oats. It will, therefore, be advisable to mix pollard or straw, finely cut, with peas and beans, before giving to cattle.

BEAN, KIDNEY.—This plant and its uses are too well known to require any description. The sorts mentioned in Russell’s Catalogue, are *Kidney dwarfs, or string* :—early yellow cranberry; early Mohawk, (which will bear a smart frost without injury;) early yellow six weeks; early Canadian dwarf; early dwarf cluster; early dun colored, or Quaker; early China dwarf; large white kidney dwarf; white cranberry dwarf; red cranberry dwarf; Warrington, or marrow; refugee, or thousand to one; Rob Roy; white cutlass bean of Carolina. *Pole or running beans* :—large white Lima; saba or Carolina; scarlet runners; white Dutch runners; Dutch case-knife, or princess; red cranberry; white cranberry; (the three last mentioned string beans;) asparagus, or yard long, *dolichos sesquipedalis*.

The following directions for the culture of the bean in gardens are from McMahon: “Towards the latter end of April, [or the fore part of May in New England,] you may plant a first crop of kidney-beans in the open ground. Select a warm, dry and favorably situated spot, and, having dug and manured it properly, draw drills an inch deep, and two feet or thirty inches asunder, drop the beans therein two inches apart, and draw the earth equally over them; do not cover them more than an inch deep; for at this early time they are liable to rot, if cold or wet ensue. The kinds proper to be sown now are, the early cream-colored, speckled, yellow and white dwarfs.”

Loudon gives the following directions for the culture of *runners* or *pole*-

beans, as they are commonly called in this country:—The runner kidney beans may be sown in a small portion towards the end of April, [about the middle of May in New England,] if tolerably warm, dry weather; but as these beans are rather more tender than the dwarf sorts, more liable to rot in the ground by wet and cold, especially the scarlets, the beginning or middle of May [first of June in New England] will be time enough to sow a considerable crop; and you may sow a full crop about the beginning of June. Allot principally the scarlet and large white runners. Some Dutch runners are very eligible as a secondary crop. The first crops should have the assistance of a south wall. Intermediate crops may be sown in any open compartment, or against any fence not looking north. The latest sown will continue bearing longer under a good aspect and shelter. In sowing, draw drills about an inch and a half, or not more than two inches deep. Let parallel rows be at least four feet asunder, to admit in the intervals tall sticks or poles for the plants to climb on. Place the beans in the drills, four inches apart, and earth them in evenly the depth of the drills. A row contiguous to a fence or building may ascend upon lines. Some may be sown in a single row along a border, or on each side of a walk, and have the support of a slight trellis of laths and lines; or they might be arched over with similar materials to form a shady walk or bower. In a cold, wet season, or when requisite to have a few plants more forward than the general crop, some scarlets may be sown in April, either in a slight hot-bed, or in pots, under frames of hand glass, to raise and forward the plants, till two or three inches high: then, at the end of May, transplant them into the open garden. As the plants come up, and advance from three to six inches in growth, hoe some earth to the stems, cutting down all weeds. When they begin to send forth runners, place suitable supports to each row; and conduct the tendrils to the sticks or lines, turning them in a contrary direction to the sun. The ascending plants will soon come into flower, podding at the joints, in long succession. They are so prolific, that the returns from three sowings, in May, June and July, will last from July till October.

Taking the Crop.—Gather the pods, both from dwarfs and runners, while they are young, fleshy, brittle and tender, for then they are in the highest perfection for the table; and the plants will bear more fully, and last longer in fruit, under a course of clean gathering.

To save seed.—Either sow a portion for that object, or leave rows wholly ungathered, of the main crop, or preserve a sufficiency of good pods promiscuously. The beans saved should be the first fruits of a crop, sown at a period which throws the entire course of growth into the finest part of summer. Let them hang on the stalks till they ripen fully, in August and September; then let the haulm be pulled up and placed in the sun, to dry and harden the seed, which should be afterwards cleared out of the husks, bagged up and housed.

The pea, English bean, and kidney bean are liable to the attacks of various insects, especially the *aphides*, [plant lice,] in dry seasons. When early crops are newly sown, or planted, mice will burrow for and eat the seed, and when it begins to penetrate the soil, it is attacked by snails, slugs, the cut worm, &c. The usual means of guarding against the ravages of insects must, therefore, be resorted to by the gardener.

As regards the field culture of the bean, we would observe, that the white kind, which is most generally approved of in New England, will produce pretty good crops, on poor, sandy, or gravelly soils; but when planted on such ground, it is good husbandry to wet and roll them in plaster before planting. They may be planted in hills or drills, the rows two and a half or three feet apart, according to the strength of the soil, and cultivated like other hoed crops. They may be planted in the latter end of May, or beginning of June, or about the time of planting Indian corn. If planted in hills, they may be placed from fourteen to twenty-four inches apart in the rows, and the rows the distance before mentioned. Five beans are quite enough to remain in a hill. Hogs' dung, mixed with ashes, is said to be the best manure for them, and it is said to be very injurious to beans to hoe them while the dew is on, or in wet weather.

Judge Buel, of Albany, has given the following notices of some experiments in the field culture of this vegetable:—" Beans may be cultivated in drills or in hills. They are a valuable crop, and, with good care, are as profitable as a wheat crop. They leave the soil in good tilth. The China bean, with a red eye, is to be preferred. They ripen early, and are very productive. I cultivated beans the last year in three different ways, viz., in hills, in drills, and sowed broad-cast. I need not describe the first, which is a well-known process. I had an acre in drills, which was the best crop I ever saw. My management was this:—On an acre of light ground, where the clover had been frozen out the preceding winter, I spread eight loads of long manure, and immediately plowed and harrowed the ground. Drills or furrows were then made with a light plow, at the distance of two and a half feet, and the beans thrown along the furrows about the 25th of May, by the hand, at the rate of at least a bushel on the acre. I then gauged a double mould-board plow, which was passed once between the rows, and was followed by a light one horse roller, which flattened the ridges. The crop was twice cleaned of weeds, by the hoe, but not earthed. The product was more than forty-eight bushels, by actual measurement. The beans brought me one dollar the bushel last fall. The third experiment was likewise upon a piece of ground where the clover had been killed. It was plowed about the first of June, the seed sown like peas, upon the first furrow, and harrowed in. The drought kept them back; but about 65 rods of ground, on which the experiment was made, gave a product of twelve and a half bushels. The crop was too ripe when it was harvested,

and as it was cut with a scythe, I estimated that about two and a half bushels were left upon the ground. No labor was bestowed upon them from the time they were sown till they were harvested."

Forwarding an early crop.—The kidney bean is often partially forced, in hot-houses or frames, with a view to the forwarding of its produce in the open garden. Mr. Armstrong says, "In the neighborhood of cities, the dwarf varieties are often cultivated in hot-beds, but the product is of a very inferior kind; for, of the whole catalogue of vegetables, none is more apt to take a disagreeable flavor from hot and fermenting dung (which is the basis of these beds) than the bean." It is probable, however, that beans might be forced to advantage, in hot-beds, composed of oak leaves, tanner's bark, &c., without deriving therefrom the disagreeable flavor complained of

BEET.

Beta Vulgaris.—*Beterave, Fr.*—*Rothe Rübe, Ger.*

AMONG the more common varieties of this valuable vegetable are,

French sugar, or amber beet,	Early blood turnip-rooted,
Mangel wurtzel,	Early dwarf blood,
Green—for stews or soups,	Early white scarcity,
Yellow turnip-rooted,	Long blood red.

Sown from April to June. The early turnip blood beet is the earliest, and of excellent quality for summer use; the tops being good for boiling as greens. Mr. Loudon's directions for the general culture of the beet are:—

" *Seed and Soil.*—The beet is always raised from seed, and for a bed four feet and a half by twelve feet, one ounce is requisite. The soil in which it naturally delights is a deep, rich sand, dry and light, rather than moist. Sowing in seed beds, and transplanting has been tried; but though it may answer for spinage or pot-herb beets, [white and its varieties,] it will not answer where the object is a large clean root.

" *Sowing.*—The beet is sown annually the last week in March, or beginning of April, [in the northern United States, the main crop should be delayed till the middle of May.] The ground on which it is sown should have been previously enriched by mellow compost and sea sand; but rank dung is not to be laid in, as it is apt to induce canker. For the long-rooted kind, trench to the depth of eighteen inches. Sow either broad-cast on the rough surface, and rake well into the earth; or, as the seed is large, sow in drills an inch or two deep and a foot asunder; or dot it in with a thick, blunt-ended dibble in rows that distance, making holes ten or twelve inches

apart, about an inch and a half deep; drop two or three seeds in each hole, but with the intention to leave only one beet plant."

Mr. Mahon says, " Make choice of a piece of rich, deep ground, lay it out into four feet wide beds, push the loose earth into the alleys, then sow the seed tolerably thin, and cover it with the earth out of these alleys to about three quarters of an inch deep. Or, let drills be drawn with a hoe, near an inch deep, and a foot or a little better asunder; drop the seeds thinly therein and cover them over the same depth as above. Or you may sow the seed on a piece of ground rough, after being dug, and rake it well in."

Subsequent culture.—When the young plants are advanced into leaves, one, two, or three inches in growth, they must be thinned and cleared from weeds, especially those sown promiscuously, or broad-cast and in drills. If there be chasms in the rows, fill them up with the superfluous plants. The oftener the ground is stirred during the whole course of the vegetation of the plant, the larger will be the product, and the better its quality.

As soon as vegetation is over, which always occurs after the first hard frost, take up the plants, expose them a day or two to the air, to evaporate their surplus moisture, and then house them carefully. This may be done by putting them in layers in a dry cellar, and interposing between these a slight covering of sand. In digging the roots, great care should be taken that they be not broken or cut, as they bleed much. For the same reason, the leaves should be cut off at least an inch above the solid part of the root.

To save seed.—Either leave a few strong roots standing in the rows, or select a few, and transplant them to a spot where there will be no danger, when in flower, of being impregnated with any other variety. They will shoot up the second year, when their flower-stocks should be tied to stakes, to prevent their breaking over.

Field culture of the mangel wurtzel beet, and the sugar beet.—Soil and preparation.—The soil for these roots should be a loam inclining to clay, in good tilth, well manured, and made fine to a good depth. John Hare Powel, Esq., corresponding secretary to the Pennsylvania Agricultural Society, in giving an account of his mode of cultivating this crop, says, " My soil was not naturally strong: it has been gradually so much deepened as to enable Wood's plow, No. 2, drawn by four oxen, to plow fourteen inches deep. Fresh barn-yard manure was equally spread upon the surface, and plowed under in the early part of April, in quantities not larger than are generally used for potato crops in this country. Early in May, the land was twice stirred with Beatson's scarifier, harrowed, rolled; after stirred, harrowed and rolled again in the opposite direction." The soil on which Messrs. Tristram Little and Henry Little of Newbury, Mass. raise their premium crop in 1824, is a clay loam. In 1823, about three-fourths of the same was sowed with onions, and manured with about eight cords of compost manure to the acre. The other quarter was sowed with wheat without manure. In

the fall of 1823, there were about ten cords of compost manure drawn on the lot, and put in a heap. Most of the said compost was drawn from the salt marshes, when ditching the same; the other part was from the barn-yard. In the month of April, 1824, the heap was thrown over, and well mixed.

Planting.—Col. Powel says, “The holes for the seeds were made by a wheel, containing pegs in its circumference, which penetrated the ground about an inch, leaving intervals of four inches; the rows were made 2 feet asunder; two capsules were dropped in each hole; the wheel of a common barrow was passed over them, thus compressing the earth, and leaving a slight rut for the retention of moisture.”

Messrs. Tristram and Henry Little observe, that, “Between the 8th and 11th of May, the land was plowed and sowed in the following manner:—After one deep plowing, the ground was furrowed two and a half feet apart, and the manure put into the furrows, and covered with a double mould-board plow; a roller was then passed on the top of the ridge, and the seed dibbled in with the finger over the manure, about six or eight inches apart.” The quantity of seed, according to English writers, is four pounds to an acre. Mr. David Little, in obtaining a premium crop, sowed four pounds, but observed that he thought half that quantity would have been sufficient.

Gathering and preserving.—In gathering the roots, care should be taken to cut off the leaves about half an inch above the crown, as they will not keep so well, if cut more closely. Messrs. Tristram and Henry Little say, “As to the best mode of preserving them, we have tried divers ways,—by pitting them, by putting them into a barn, and covering them with hay, and by putting them into the cellar; the last mode we think the best.” Col. Powel observes, that one of his crops was “piled in a cellar, in rows, as wood, and covered with sand.” A writer in the *English Farmer’s Journal*, observes, that he has practiced, with success, the following mode of preserving this root:—“I pack it in long heaps, about seven feet wide at the bottom. I begin by forming the outsides with the roots, not stripped of their tops; tops outwards; the internal parts to be filled with roots without leaves; continue one layer over another, until the heap is about six feet high, and about two feet broad at top, which may be covered with straw and earth; the ends of the heap should be covered in the same way; the leaves form an efficient covering against rain and frost.”

Mr. M’Mahon’s mode of preserving beets, and other roots, is as follows:—“Previous to the commencement of severe frost, you should take up, with as little injury as possible, the roots of your turnips, carrots, parsnips, beets, salsify, scorzonera, Hamburg or large-rooted parsley, skirrets, Jerusalem artichokes, turnip-rooted celery, and a sufficiency of horse-radish, for the winter consumption; cut off their tops, and expose the roots for a few hours till sufficiently dry. On the surface of a very dry spot of ground, in a well

sheltered situation, lay a stratum of sand two inches thick, and a layer of roots of either sort, covering them with another layer of sand, (the drier the better,) and so continue layer about of sand and roots till all are laid in, giving the whole, on every side, a roof-like slope; then cover this heap or ridge all over with about two inches of sand, over which lay a good coat of drawn straw, up and down, as if thatching a house, in order to carry off wet, and prevent its entering the roots; then dig a wide trench round the heap, and cover the straw with the earth so dug up, to a depth sufficient to preserve the roots effectually from frost. An opening may be made on the south side of this heap, and completely covered with bundles of straw, so as to have access to the roots at all times, when wanted either for sale or use.

“ Some people lay straw, or hay, between the layers of roots, and immediately on the top of them; this I do not approve of, as the straw may will become damp and mouldy, and very often occasion the roots to rot, while the sand would preserve them sweet and sound.

“ All these roots may be preserved in like manner in a cellar; but in such a place they are subject to vegetate and become stringy earlier in spring. The only advantage of this method is, that in the cellar they may be had when wanted, more conveniently during winter, than out of the field or garden heaps.

BENE PLANT.

Sesamum.

THIS was introduced into the Southern States by the negroes from Africa. It abounds in many parts of Africa. Soninni and Brown, travelers in Egypt, say it is much cultivated there for the purpose of feeding horses, and for culinary purposes. The negroes in Georgia boil a handful of the seeds with their allowance of Indian corn. Probably no plant yields a larger proportion of oil, which Dr. Cooper of Philadelphia has pronounced equal to the finest oils. But it is worthy of cultivation in the Northern States, principally, as a medicinal plant. A gentleman in Virginia has given Messrs. Thorburn & Son the following account of its virtues:—“ It requires to be sown early in April, at a distance of about one foot apart. A few leaves of the plant, when green, plunged a few times in a tumbler of water, make it like a thin jelly, without taste or color, which children afflicted with the summer complaint will drink freely, and it is said to be the best remedy ever discovered. It has been supposed, that (under Providence) the lives of three hundred children were saved by it last summer in Baltimore, and I know the efficacy of it by experience in my own family.” This plant will

throw out a great profusion of leaves by breaking off the top when it is about half grown.—*Russell's Catalogue.*

BORECOLE

Brassica oleracea.—*Chou vert*, Fr.—*Grüne Kohl*, Ger.

The Borecole contains several sub-varieties, the common characteristic of all which is an open head, sometimes large, of curled or wrinkled leaves, and a peculiar, hardy constitution. There are fourteen varieties enumerated by Loudon. Those which he says are the most valuable, are the green borecole, Scotch kale, or Siberian borecole, the purple or brown kale, the German kale, German greens, or curlies.

Propagation.—All the sorts are propagated by seed; and for a seed bed four feet by ten, Abercrombie says, one ounce of seed is necessary. M'Mahon directs to "sow towards the end of March [about three weeks later in New England] a first crop of borecole for autumn service," and observes:

"There are two principal sorts, the green and the brown, both very hardy plants, with tall stems, and full heads of thick fimbriate, curled leaves, not cabbaging, and are desirable open greens for winter, &c. Let this seed be sown in an open exposure, distant from trees, and from close fences, as, in such situations they are apt to draw up too fast, with long, weak stalks; sow it broad-cast, and rake it in." Several crops may be sown in several successive months, from the middle of April to the middle of September. In dry weather, water the plants occasionally, both before and after they are up. "When about three inches high, it will be proper to thin the seed bed, and prick out a quantity therefrom, at four inches distance, that the whole may obtain proper strength for final transplanting.

"When the plants are set in the places where they are to complete their growth, they should be planted out like cabbages, at three feet distance every way, and afterwards be kept free from weeds, and the earth drawn to their stems as they advance in growth. Those intended for winter use should not be planted in a rich, fat loam, as there they would become too succulent, and consequently could not bear the frost as well as if growing on a gravelly soil. Such as are designed for autumn use, may be planted in any convenient bed that is tolerably rich.

"The green and brown curled borecole, being very hardy, will require little protection [against the cold of winter]. In November they may be taken up, and planted in a ridge tolerably close together, and, during severe frost, be covered lightly with straw; this will preserve them sufficiently: and during winter the heads may be taken off as they are wanted for use.

the stems, if taken up and planted in rows, as early in March as the weather will admit, will produce abundance of the most delicious sprouts.

"In the Southern States, and even in warm soils and exposures in the Middle States, borecole will stand the winter in open beds, without any covering whatever."—*M'Mahon.*

Use.—The crown or center of the plant is cut off, so as to include the leaves which do not exceed nine inches in length. It boils well, and is most tender, sweet and delicate, provided it has been duly exposed to frost.—*London.*

BROCCOLL.

Brassica oleracea.—*Broccoli*, Fr.—*Italianische Kohl*, Ger.

THESE are several varieties of broccoli, which are all merely late-heading varieties of the cauliflower. Miller mentions the white and purple broccoli, as imported into England from Italy; and it is thought that from these two sorts all the subsequent kinds have arisen, either by accidental or premeditated impregnations. The kinds introduced into this country are, the early white, early purple, and large cape.

The seeds of broccoli should be sown in New England about the latter end of May, or beginning of June; and when the young plants have germinated eight leaves, they should be transplanted into beds. By this management, towards the latter end of July, they will be fit to be planted out in some well sheltered piece of ground, at the distance of a foot and a half in the rows, and two feet between each row.

The soil proper for broccoli is rather light than heavy. M'Mahon says, the early purple broccoli, if sown early in April, and planted out as you do cabbage, in good rich ground, will produce fine heads in October or November, very little inferior to cauliflowers, and, by many, preferred to them: the white will not flower so early, and, in the Middle and Eastern States, must be taken up in November, and managed as directed in that month, [see "preserving cabbages," &c. under the article CABBAGE, in the following pages,] by which a supply of this very delicious vegetable may be had, in great perfection, during all the winter and spring.

"In such of the Southern States, as their winters are not more severe than in England, they will stand in the open ground, and continue to produce their fine flowers, from October to April. In the Middle, and especially the Eastern States, if the seeds are sown early in March on a hot-bed, and forwarded as is done with cauliflowers and early cabbage plants, and planted

out finally in April, it would be the most certain method of obtaining large and early flowers."

Insects and diseases.—"In old gardens, infested, as is often the case, with an insect which in summer insinuates itself into the roots of all the *brassica* tribe, and causes the disease called the *club*, trenching the ground deep enough to bring up four or six inches of undisturbed loam or earth, will probably bury the insects too deep for mischief, and provide fresh ground for the benefit of the plants. In gardens much exhausted by reiterated croppings, if this mode cannot be adopted, a good quantity of fresh loam from a common field, dug in, would materially improve the broccoli, and be of lasting use in future crops. Broccoli, in general, succeeds best in a fresh, loamy soil, where it comes, I think, more true in kind, and is hardier without dung; but if this situation cannot be had, deep digging, with plenty of manure, is the only remaining alternative to produce good crops. I believe soap ashes, dug into the ground in considerable quantities, to be a good preservative from the club; and if the roots of the plants, just previously to planting, are dipped and stirred well about in mud of soap ashes with water, its adherence will, in a great measure, preserve them from attack; perhaps a mixture of stronger ingredients, such as soot, sulphur, tobacco, &c. would be still better."—*Hort. Trans.* vol. iii.—See CABBAGE.

Wood, a writer in the *Caledonian Horticultural Memoirs*, says, he paid a considerable degree of attention to the culture of broccoli, and has made considerable progress therein. He found that manuring with a compound of sea-weed and horse-dung produced the largest and finest heads he had seen for many years.

Culture without transplanting.—"M'Leod grows cape broccoli, in a very superior manner, without transplanting. In the end of May, after having prepared the ground, he treads it firm, and, by the assistance of a line, sows his seed in rows two feet apart, dropping three or four seeds into holes two feet distant from each other in the row. When the seeds vegetate, he destroys all except the strongest, which are protected from the fly by sprinkling a little soot over the ground; as the plants advance they are frequently flat hoed until they bear their flowers; they are once earthed up, during their growth. A specimen of broccoli, thus grown, was exhibited to the Horticultural Society; the head was compact and handsome, measuring two feet nine inches in circumference, and weighing when divested of its leaves and stalks, three pounds; the largest of its leaves was upwards of two feet long. M'Leod adopts the same mode in the cultivation of spring-sown cauliflowers, lettuces, and almost all other vegetables, avoiding transplanting as much as possible."—*Hort. Trans.* vol. iv, p. 559.

To save seed.—Wood, already mentioned, selects the largest, best formed, and finest heads, taking particular care that no foliage appears on the surface of the heads; these he marks, and, in April, lays them by the heels in a

compound of cleanings of old ditches, tree leaves, and dung. When the head begins to open and expand, he cuts out the center, leaving only four or five of the outside shoots to come to seed. Lifting, [taking up,] he says, prevents them from producing proud seed, as it is called, or degenerating.—*Caled. Hort. Mem.* vol. ii. p. 267. Abercrombie says, broccoli seeds degenerate in this country, [England,] and that the best seed is obtained from Italy.—*Loudon.* The common directions are, in substance, as follows:

Reserve a few of the largest heads of the first crop, stripping constantly off all under shoots, leaving only the main stem to flower and seed, and tie them to strong stakes, to prevent their being broken by winds and heavy rain. Care should be taken that no other sort of cabbage is suffered to go to seed near them.

Use.—The same as the CAULIFLOWER, which see in its alphabetical order

BRUSSELS SPROUTS.

Brassica oleracea.—*Chou de Bruxelles, Fr.*—*Sprossen Kohl, Ger.*

THE Brussels sprouts produce an elongated stem, often four feet high, from which sprout out shoots, which form small green heads, like cabbages in miniature, each being from one to two inches in diameter, and the whole ranged spirally along the stem, the main leaves of which drop off early. The top of the plant resembles that of a Savoy, planted late in the season; it is small, and with a green heart of little value. Van Mons says, (*Hort. Trans.* vol. iii,) "If this vegetable be compared with any other, which occupies as little space, lasts as long, and grows as well in situations generally considered unfavorable, such as between rows of potatoes, scarlet runners, or among young trees, it must be esteemed superior in utility to most others." Nicol considered it deserving a more general culture in Scotland.

Use.—The sprouts are used as winter greens; and at Brussels they are sometimes served at table with a sauce composed of vinegar, butter and nutmeg, poured upon them hot, after they have been boiled. The top, Van Mons says, is very delicate when dressed, and quite different in flavor from the sprouts.

Culture.—The plants are raised from seed, of which an ounce may be requisite for a seed bed, four feet by ten feet. Van Mons, in his paper already referred to, says, "The seed is sown in the spring, under a frame, so as to bring the plants forward; they are then transplanted into an open border with a good aspect." By thus beginning early and sowing successively till late in the season, he says, "we contrive to supply ourselves in Belgium with this delicious vegetable full ten months in the year; that is, from the

end of July to the end of May." The plants need not be placed at more than eighteen inches each way, as the head does not spread wide, and the side leaves drop off. In this, as in every other respect, the culture is the same as that of the borecole.

Gathering the crop.—Morgan says, the sprouts must have some frost before gathered; but this Van Mons assures us is an erroneous opinion. In Belgium, the small cabbages are not esteemed if more than half an inch in diameter. It is usual to cut off the top about ten or fifteen days before gathering from the stem. In spring, when the sprouts are disposed to run to flower, their growth is checked by taking up the plants, and setting them in the ground in any shaded spot.

To save seed.—Van Mons says, it is usual to save seeds indiscriminately from plants which have and those which have not been topped; but that he intends to save from the tops only, hoping thereby to improve the progeny. Whatever mode be adopted, the grand object is to place the plants where they will be in no danger of receiving the farina of any other of the *brassica* tribes.—*Loudon.*

CABBAGE.

Brassica Oleracea.—*Chou Pomme*, Fr.—*Weiss Kopfkohl*, Ger.

This cabbage tribe is of all the classes of cultivated culinary vegetables the most ancient, as well as the most extensive. The *brassica oleracea*, being extremely liable to sport or run into varieties and monstrosities, has, in the course of time, become the parent of a numerous race of culinary productions, so very various in their habit and appearance, that to many it may appear not a little extravagant to refer them to the same origin. Besides the different sorts of white and red cabbage and Savoys, which form the leaves into a head, there are various sorts of borecoles, which grow with their leaves loose in the natural way, and there are several kinds of cauliflower and broccoli, which form their stalks or flower-buds into a head. All of these, with the turnip-rooted cabbage and the Brussels sprouts, claim a common origin from the single species of *brassica* above mentioned. Cabbage of some sort, White, in his History of Selborne, informs us, must have been known to the Saxons; for they named the month of February *Sprout kale*. Being a favorite with the Romans, it is probable that the Italian cabbage would be introduced at an early period into South Britain. To the inhabitants of the north of Scotland, cabbages were first made known by the soldiers of the enterprising Cromwell, when quartered at Inverness.—*Edin Ency. art. HORTICULTURE.*

Among the varieties of the cabbage, which have been introduced into this country, the following are enumerated in Mr. Russell's Catalogue:—

Early Salisbury dwarf,	Late sugarloaf,
Early York,	Large green glazed,
Early Dutch,	Tree, or thousand-headed,
Early sugarloaf,	Large Scotch, <i>for cattle</i> ,
Early London Battersea,	Green globe Savoy,
Large Bergen, or great American,	Red Dutoh, <i>for pickling</i> ,
Early emperor,	Large cape Savoy,
Early Wellington,	Yellow Savoy,
Russian,	Turnip-rooted, or Arabian, <i>(above ground.)</i>
Large late drumhead,	Turnip-rooted, <i>(below ground.)</i>
Late imperial,	Chou de Milan.

Soil and Situation.—Every variety of cabbage grows best in a strong, rich, substantial soil, inclining rather to clay than sand; but will grow in any soil, if it be well worked, and abundantly manured with well rotted dung. But, according to Loudon, "The soil for seedlings should be light, and excepting for early sowings, not rich. Where market gardeners raise great quantities of seedling cabbages to stand the winter, and to be sold for transplanting in the spring, they choose, in general, the poorest and stiffest land they have got, more especially in Scotland, where large autumnal sowings, of winter drumhead and round Scotch, are annually made, and where the stiffness of the soil gives a peculiar firmness of texture and hardness of constitution to the plants, and prevents their being thrown out of the soil during the thaws which succeed a frosty winter. Transplanted cabbages require a rich mould, rather clayey than sandy; and, as Neill and Nicol observe, it can scarcely be too much manured, as they are an exhausting crop. Autumnal plantations intended to stand the winter, should have a dry soil, well dug and manured and of a favorable aspect. The cabbage, whether in the seed-bed or final plantation, ever requires an open situation. Under the drip of trees, or in the shade, seedlings are drawn up weak, and grown crops are meager, worm-eaten and ill-favored.

Sowing cabbage seed.—M'Mahon says, "The proper period for sowing cabbage in the Middle States, to produce *early summer* cabbages, is between the sixth and the tenth of September, if intended to be transplanted into frames in October, for winter protection, which is the preferable method; but if they are designed for remaining in the seed-beds till spring, the period is between the fifteenth and twentieth. However, it will be very proper to make two or three sowings within that time, as it is impossible to say whether the fall may be favorable or otherwise, and, therefore, the better way is to be prepared in either case by successive crops.

"The consequence of having crops too early is, that they are subject to sun to seed in the spring soon after being planted out: and if the seeds are

sown too late, the plants do not acquire sufficient strength before winter to withstand its rigor, without extraordinary care. But in either case there is a remedy; that is, if the plants are likely to become too luxuriant and strong, transplant them once or twice in October, and if too backward and weakly, make a slight hot-bed towards the latter end of that month, and prick them out of the seed-bed thereon; this will forward them considerably."

Mr. M'Mahon thinks that, in the Eastern States, the fore part of September will be a suitable time to sow cabbages intended to be grown the succeeding summer. The seeds should be covered about a quarter of an inch deep, and, if the weather prove dry, should be watered occasionally in the evening till they come up. According to Abercrombie's seed estimate, "for a seed-bed to raise the early York and similar varieties, four feet wide by twenty in length," two ounces will be required; for a seed-bed to raise the large sugarloaf, and other luxuriant growers, four feet by thirty-six in length, two ounces. The same writer directs to "sow at three different seasons, that is, spring, summer and autumn, and cover from an eighth to a quarter of an inch. Under a deficiency of winter standing young plants for final transplanting, or in order to have some spring sown plants as forward as possible, a moderate portion of some best early sorts may be sown between the middle of February and the middle of March, in a slight hot-bed or frame, to nurture the plants till the leaves are an inch or two in length. Then prick them into intermediate beds in the open garden, there to gain strength for final transplanting."

Planting in New England.—"Some drop the seeds where the cabbages are to grow. By this they escape being stinted by transplanting; for winter cabbages, the latter part of May is early enough to put the seed into the ground, whether the plants are to be removed or not. I have tried both ways, and on the whole, I prefer transplanting. They are otherwise apt to be too tall, and to have crooked stems. Covering plants with leaves is not a good practice. They will be much heated through some sorts of leaves, the free circulation of air about them will be prevented, and their perspiration partly obstructed. If a hot sun cause them to droop, a shingle stuck into the ground will be sufficient shelter, if it be on the south side of the plants. I commonly allow each plant two shingles, one on the south-east side, and one on the south-west, meeting at the south corner."—*Dane.*

The act of planting should be performed carefully. Holes, of sufficient depth and width, should be dibbled, for the smaller sorts of cabbages at the distance of two feet and a half, and, for the larger sort, of three feet every way. In these the earth should be placed up to the lower leaves, and the earth brought closely about the roots, which is best done by pushing down the dibbler, at a small angle with the plant, and then bringing it up to it with

a jerk. This leaves no chambering, (as gardeners call it,) no vacancy between the plant and the soil.

"The state of the weather, when these operations are performed, is not a matter of indifference, and has been a subject of controversy; some recommending dry weather, others wet. As in many other cases of disputation, the truth lies between them—that is, moist weather is neither dry nor wet, and is precisely that which is best for setting out cabbages, or any other vegetable. We ought not, however, to wait long for even this most favorable state of the atmosphere, since, with a little labor, we have the means of making up for its absence."—*Armstrong*.

"Dig the plants up, that is, loosen the ground under them with a spade, to prevent their being stripped too much of their roots. The setting stick should be the upper part of a spade or shovel handle. The eye of the spade is the handle of the stick. From the bottom of the eye, to the point of the stick, should be about nine inches in length. The stick should not be *tapering*, but nearly of equal thickness all the way down to within an inch and a half of the point, where it must be tapered off to the point. If the wood be cut away, all round, to the thickness of a dollar, and *iron* put round in its stead, it makes a very complete tool. The iron becomes bright, and the earth does not adhere to it as it does to wood. Having the plant in one hand, and the stick in the other, make a hole suitable to the root that it is to receive. Put in the root in such a way, that the earth, when pressed in, will be on a level with the butt-ends of the lower or outward leaves of the plant. Let the plant be rather higher than lower than this; for care must be taken not to put the plant so low as for the earth to fall, or be washed into the heart of the plant, nor even into the inside of the bottom leaves. The stem of a cabbage, and the stems of all the cabbage kind, send out roots from all the parts of them that are put beneath the surface of the ground. It is good, therefore, to plant as deep as you can without injury to the leaves. The next consideration is, the *fastening of the plant in the ground*. The hole is made deeper than the length of the root, but the root should not be bent, at the point, if it can be avoided. Then, while one hand holds the plant, with its root in the hole, the other hand applies the setting stick to the earth on one side of the hole, the stick being held in such a way as to form a sharp triangle with the plant. Then, pushing the stick down, so that its point go a *little deeper than the point of the root*, and giving it a little *twist*, it presses the earth against the point, or bottom of the root. And thus all is safe, and the plant is sure to grow."—*Cobbett*.

After-culture.—Little more is necessary than to stir the ground pretty frequently, and keep it clear of weeds. It is recommended to hoe the ground while the dew is on, once a week, till they begin to head.

Diseases and insects.—Cabbages are liable to a disease in the roots, in which they become swelled and knobby, and the plants of weak and imper

fect growth. This disorder is called *stump foot, fumble foot, &c.* It has been supposed to be caused by the attacks of grubs, below the surface of the ground; and the disorder is said to be chiefly prevalent where the same sorts of cabbages have been raised on the same ground several years in succession. Lovet Peters, Esq., of Westborough, Mass., says the cause of the stump foot is in the soil:—"Few pieces of land, I believe, that have been, for several successive years, under the plow, will produce a good crop of cabbages, though there may be exceptions. My method of raising them, which I have practiced several years with complete success, is the following:—In the spring, take a piece of green sward, of a good soil, and free from stones, and turn it over with the plow as flat as possible; then spread on a large quantity of good manure: if it has been previously mixed with leached ashes, the better. Then harrow gently, and early in June: if for winter cabbage, cut holes through the turf, with a hoe, as near together as the cabbages ought to grow; fill the holes with fine earth and manure, and then set the plants, or put in a small number of seeds—I prefer the latter, however,* since it saves the labor of setting, and is much surer of success, if it happens to be a time of drought. They will need no more hoeing than is necessary to keep down the weeds. In this way, I have raised cabbages of the largest size, in a green sward potato field, without more hoeing than was necessary for the potatoes."

Cabbage plants are liable to be attacked by a grub or black worm, in the night, which eats off the stalks, just above ground, and buries itself in the

* Cultivators do not agree on the subject of transplanting cabbage plants, or sowing the seeds in the spots where the plants are to grow. Dr. Deane, as has appeared above, after having tried both methods, gave the preference to transplanting. Mr. Peters, as we have seen, prefers the other mode. Mr. Bordley relates an experiment, in which he "compared cabbages transplanted with others *not once moved*. The *unmoved* grew, and were better than the *moved*." Mr. Cobbett says, "to have *fine* cabbages of any sort, they must be *twice* transplanted. First, they should be taken from the seed-bed, (where they have been sown in beds near to each other,) and put into fresh dug, well-broken ground, at six inches apart every way. This is called *pricking out*. By standing here about fifteen or twenty days, they get straight, and stand strong, erect, and have a straight and stout stem. Out of this plantation they come *all of a size*; the roots of all are in the same state, and they strike quicker into the ground where they stand for a crop." According to *Rees' Cyclopedia*, it was the practice of the celebrated Bakewell, and other cultivators who followed his example, to drill cabbage seed where the plants were to remain. Perhaps there would be no necessity for transplanting cabbages, in order to make the stems "straight and stout," according to Mr. Cobbett's directions, if the plants were not originally sown too thick, or were properly thinned at an early period of their growth. An English writer says, "Much injury frequently arises to young cabbage plants, from the seed being sown too thick; care should, therefore, be taken, to have them properly thinned out, whenever they come up in too thick a manner. Probably, if the plants were sown in the hills in which they are intended to grow for a crop, and thinned out in due season, they would grow as straight and stout as if they had been several times transplanted."

ground as soon as the sun rises. Dr. Deane observed that a little circle of lime or rockweed round the plant, will preserve it, and recommends digging for the worm near the place which shows the marks of its ravages, and destroying it. Scalding the hills with boiling water, and then inclosing them with boards, barks, or shingles, would be an effectual, but troublesome mode, of guarding against worms. The *Economical Journal of France* gives the following method, which it states is infallible, to guard not only against caterpillars, but all other insects which infest cabbages or other vegetables:—Sow with hemp all the borders of the ground where the cabbage is planted; and, although the neighborhood be infested with caterpillars, the place inclosed with hemp will be perfectly free, and not one of the vermin will approach it. Watering the plants with water which had been poured boiling hot on elder leaves, or walnut leaves, and suffered to stand till cool, has been recommended. The following mixture is also said to be a preservative against all kinds of insects:—Take a pound and three quarters of soap, the same quantity of flowers of sulphur, two pounds of puff balls, and fifteen gallons of water. When the whole has been well mixed, by the aid of a gentle heat, sprinkle the insects with the liquor, and it will instantly kill them. To get rid of the *aphides* or cabbage lice, watering the plants with soap-suds, or a solution of salt in water, (not too strong, lest it kill the plants,) is said to be efficient.

Preserving cabbages.—Mr. McMahon recommends the following method for preserving cabbages for winter and spring use:—“Immediately previous to the setting in of hard frost, take up your cabbages and Savoys, observing to do it in a dry day; turn their tops downward, and let them remain so for a few hours, to drain off any water that may be lodged between their leaves; then make choice of a ridge of dry earth, in a well-sheltered, warm exposure, and plant them down to their heads therein, close to one another, having previously taken off some of their loose, hanging leaves. Immediately erect over them a low, temporary shed, of any kind that will keep them perfectly free from wet, which is to be open at both ends, to admit a current of air in mild, dry weather. These ends are to be closed with straw when the weather is very severe. In this situation your cabbages will keep in a high state of preservation till spring; for, being kept perfectly free from wet, as well as from the action of the sun, the frost will have little or no effect upon them. In such a place the heads may be cut off as wanted, and if frozen, soak them in spring, well, or pump water, for a few hours previous to their being cooked, which will dissolve the frost, and extract any disagreeable taste occasioned thereby.”

The principal gardener in the Shaker establishment, in New Lebanon, Columbia county, N.Y., directs not to pull up cabbages in autumn, “till there is danger of their freezing too fast in the ground to be got up. If there happens an early snow, it will not injure them. When they are removed

from the garden, they should be set out again in a trench dug in the bottom of a cellar. If the cellar is pretty cool, it will be better."

The *London Monthly Magazine* gives the following method, by which cabbages may be preserved on board ships, &c. :—"The cabbage is cut so as to leave about two inches or more of the stem attached to it; after which the pith is scooped out to about the depth of an inch, care being taken not to wound or bruise the rind by this operation. The cabbages then are suspended by means of a cord, tied round that portion of the stem next the cabbage, and fastened at regular intervals to a rope across the deck. That portion of the stem from which the pith is taken, being uppermost, is regularly filled with water."

To save cabbage seed.—"The raising of the seed of the different sorts of cabbage, Neill observes, affords employment to many persons in various parts of England. It is well known that no plants are more liable to be spoiled by cross breeds, than the cabbage tribe, unless the plants of any particular variety, when in flower, be kept at a very considerable distance from any other; also in flower, bees are extremely apt to carry the pollen of the one to the other, and produce confusion in the progeny. Market gardeners, and many private individuals, raise seed for their own use. Some of the handsomest cabbages of the different sorts are dug up in autumn, and sunk in the ground to the head; early next summer a flower-stem appears, which is followed by abundance of seed. A few of the soundest and healthiest cabbage-stalks, furnished with sprouts, answer the same end. When the seed has been well ripened and dried, it will keep for six or eight years. It is mentioned by Bastien, that the seed-growers of Aubervilliers have learned by experience, that seed gathered from the middle flower-stem produces plants which will be fit for use a fortnight earlier than those from the seed of the lateral flower-stem; this may deserve the attention of the watchful gardener, and assist him in regulating his successive crops of the same kind of cabbage."—*Loudon.*

Field culture.—The variety cultivated in the fields for cattle is almost exclusively the large Scotch, or field cabbage. The land is prepared the same way as for other hoed crops. "The preparation given to the plants," says Loudon, "consists in pinching off the extremity of their tap-root, and any tubercles which appear on the root or stem, and in immersing the root and stem in a puddle or mixture of earth and water, to protect the fibers and pores of the roots and stem from drought. The plants may then be inserted by the dibbler, taking care not to plant too deep, and to press the earth firmly to the lower extremity of the root. If this last point is not attended to, the plants will either die, or, if kept alive by the moisture of the soil, or rain, their progress will be very slow. When the distance between the ridglets [or rows] is twenty-seven inches, the plants are set about two feet asunder in the rows, and the quantity required

for an acre is about 6000 plants." The after-culture, preservation, uses, &c. have been sufficiently detailed in the preceding pages, under this head.

CARAWAY.

Carum carvi.

"THE caraway is a biennial plant, a native of England, being occasionally found in meadows and pastures. It rises a foot and a half high, with spreading branches; the leaves are decompound; the leaflets in sixes; it produces umbels of white flowers in June.

"*Use.*—The plant is cultivated chiefly for the seed, which is used in confectionery and in medicine. In spring, the under leaves are sometimes put in soups; and in former times the fusiform roots were eaten as parsnips, to which Parkinson gives them the preference. In Essex, large quantities of the seed are annually raised for distillation with spirituous liquors.

"*Culture.*—It is raised from seed, of which a quarter of an ounce is sufficient for a seed-bed four feet by five. Sow annually, in autumn, soon after the seed is ripe: the seedlings will rise quickly, and should be thinned to a foot's distance each way. In default of sowing in autumn, sow in March or April, either in drills or broad-cast; but the plants, so raised, will not in general flower till the following year. When the seed is ripe, the plant is generally pulled up in gathering, especially in field culture."—*Loudon.*

CARDOON.

Cynara cardunculus.—*Cardon, Fr.*—*Kardonen, Ger.*

THE cardoon is a hardy, perennial plant, a native of Candia, introduced into England in 1658. It is a species of artichoke, and grows wild in the south of France.

"*Propagation.*—"Though a perennial, it often dies in the winter, and therefore requires to be raised from seed almost every year; and, for a bed four feet wide by eight feet, two ounces are sufficient. Formerly the plants were raised on hot-beds, and transplanted in May and June, but now the seed is generally sown where the plants are to remain."—*Loudon.*

"*Use.*—"The parts of the cardoon that are eaten are not those belonging immediately to the flower, as of the artichoke, but the roots, stalks, and middle ribs of the leaves, and chiefly the latter, which are thick and crisp.

But as all these are naturally bitter, the plants are blanched by being tied up like lettuces, about the month of September, and having earth thrown upon their lower parts to the depth of eighteen inches or two feet. Carrots come into season about the end of November; and are either eaten alone, or as a sauce to animal food, particularly roast meat; or are introduced as a dish in *the second course.*” —*Loudon.*

CARROT.

Daucus Carota.—*Carotte*, Fr.—*Mohre*, Ger.

This plant is said to be a native of Great Britain, where it is still found growing wild. There are many varieties of the carrot; and the following are the finest sorts enumerated in Mr. Russell's Catalogue:—

Altringham, (a superior sort.)	Lemon,
Early horn,	Long orange,
Cremer, (fine for the table.)	Blood red.

Soil.—“ The carrot requires a light, mellow soil, mixed with sand, and should be dug or trenched one or two spades deep, breaking well all the lumpy parts, so as to form a porous bed, and an even surface. The orange and red sorts, on account of their longer roots, require a soil proportionably deeper than the horn.”

Seed estimate and sowing.—The seeds have numerous forked hairs on their borders, by which they adhere together, and therefore should, previously to sowing, be rubbed between the hands, and mixed with dry sand, in order to separate them as much as possible. They are also very light, and therefore a calm day must be chosen for sowing; and the seeds should be disseminated equally and trodden in before raking. Previously to sowing, if convenient, the seed should be proven, by sowing a few in a pot, and placing it in a hot-bed or hot-house, as it is more frequently bad than most seeds. For a bed 4½ feet by 30, one ounce will be requisite, and the same for 150 feet of drill row. Dr. Deane advises to sow carrots in drills from 9 to 12 inches apart, across beds 4 feet wide. M'Mahon directs to sow thin in drills, distant from each other from 8 to 10 inches, and to thin them to 3 inches, plant from plant, in the rows.

To save seed.—Plant some largest, best roots early in the spring, two feet apart; insert them a few inches over the crowns. They will yield ripe seed in autumn, of which gather only from the principal umbel, which is likely not only to afford the ripest and largest seed, but the most vigorous plants.

Field culture.—“The only sort of carrot adapted to field culture,” says Loudon, “is the long red, or field carrot. New seed is most essential, as it will not vegetate the second year. The best soil for the carrot is a deep, rich, sandy loam; such a soil ought to be at least a foot deep, and all equally good from top to bottom. On any other the field culture of the carrot will not answer.

“The usual preparation of the seed for sowing is the mixing it with earth or sand, to cause it to separate more freely; but Burrows adds water, turns over the mixture of seeds and moist earth several times, and thus brings it to the point of vegetating before he sows it. Having weighed the quantity of seed to be sown, and collected sand or fine mould, in the proportion of about two bushels to an acre, I mix the seed with the sand or mould, eight or ten pounds to every two bushels, and this is done about a fortnight or three weeks before the time I intend sowing; taking care to have the heaps turned over every day, sprinkling the outside of them with water each time of turning over, that every part of the sand heaps may be equally moist, and that vegetation may take place alike throughout. I have great advantage in preparing the seed so long before hand; it is by this means in a state of forward vegetation, therefore lies but a short time in the ground, and, by quickly appearing above ground, is more able to contend with those numerous tribes of weeds in the soil, whose seeds are of quicker vegetation.”

The quantity of seed, when carrots are sown in rows, is two pounds per acre; and, for broad-cast sowing, five pounds. The rows for the larger or proper field carrots, should be from 14 to 16 or 18 inches apart; and the carrots thinned, in hoeing, to 3 or 4 inches apart in the rows. The seeds will do best when sown by hand, as their shape does not well admit of their being sown by machines. Loudon says, “It has been advised, by an intelligent cultivator, to deposit the seed to the depth of one inch in the rows, leaving the spaces of fourteen inches between them as intervals; the seed in these cases, being previously steeped in rain water for twenty-four hours, and left to sprout, after which it is mixed with saw-dust and dry mould, in the proportion of one peck and a half of each to a pound of seed. The land is afterwards lightly harrowed over once in a place. Two pounds of seed, in this mode, is found, as has been observed, sufficient for an acre of land.”

After-culture.—The first hoeing of carrots must be by hand—an operation which requires a great deal of attention, as it is difficult to distinguish and separate the weeds from the young carrots. Loudon says, “From eight to fifteen or eighteen inches, each way, is the common distance at which they are allowed to stand; and it has been proved, from many years’ experience in districts where they are most cultivated, that carrots which grow at such distances always prove a more abundant crop than when the plants are allowed to stand closer together.” Deane observed, “It is not amiss if they

grow large and rank, when they are chiefly designed as food for cattle, though small-sized ones are preferred for the table."

Mr. Quincy gives the following statement of the mode of cultivating carrots, made use of by Samuel Wyllys Pomeroy, and which he prefers to all others:—

"Plow as deep in the fall or spring as the state of the land will permit. Cross-plow in the spring, and harrow level. Put on fifteen, twenty, or twenty-five buck-loads of the most rotten compost to the acre, as the heart of the land may be. Spread and harrow it fine. Then, with a horse-plow, strike it into two-bout ridges, as near together as four back furrows will make them, and if the two first back furrows are narrow, the other two being deep, the ridge will be nearly to a point, and should be eighteen or twenty inches from the bottom of the furrow, if it be well cleared out. To do which, make another bout in the furrow, if necessary. Then, with the head of the rake, strike off the crown of the ridge, till it is three or four inches wide, and with it, or a hoe, open a drill in the usual manner. Sow the seed pretty thick, cover and press down a little with a hoe or shovel. When the weeds appear, run a small plow through the furrows. Hand-weed the crop, and hoe the weeds from the sides of the ridge. The orange carrot is best."

"In harvesting, a plow with one yoke of oxen should be run near the side of the range of carrots, and as deep as possible. This loosens the dirt, and clears one side of the carrots almost entirely from the earth. The laborers then, with great facility, take them by their tops out of the beds, and throw them into carts, with only an occasional use of the hoe to plants which the plow has not loosened.

"I have no question that, conducted in this mode, a carrot crop may be made more productive, and much less expensive, than the potato crop usually is. In sowing, I use a small hand-drill, which lays the seed with great regularity—a circumstance very important both to facilitate weeding and harvesting; since, if the carrots stand straggling, and not in a line, the plow, when harvesting, leaves the more to be loosened by the hoe or the fork."—*Massachusetts Agricultural Repository*, vol. iv, p. 24.

A mode of cultivating carrots, differing slightly from the above, is described by Mr. Quincy, in the same work, vol. iv, p. 212.

For other modes of cultivating this root, see *Mass. Agr. Rep.* vol. v, pp. 20, 255, 347.

Use.—"Horses are remarkably fond of carrots, and it is even said, that when oats and carrots are given together, the horses leave the oats and eat the carrots. The ordinary allowance is about forty to fifty pounds a day to each horse. Carrots, when mixed with chaff, that is, cut straw, and a little hay, without corn, keep horses in excellent condition for performing all kinds of ordinary labor.

"In comparing the carrot with the potato, an additional circumstance greatly in favor of the former is, that it does not require to be steamed or boiled, and it is not more difficult to wash than the potato. These and other circumstances considered, it appears to be the most valuable of all roots for working horses.

"The use of the carrot in domestic economy is well known. Their produce of nutritive matter, as ascertained by Sir H. Davy, is ninety-eight parts in one thousand; of which three are starch, and ninety-five sugar. They are used in the dairy in winter and spring to give color and flavor to butter. In the distillery, owing to the great proportion of sugar in their composition, they yield more spirit than the potato; the usual quantity is twelve gallons per ton. They are excellent in soups, stews, and haricots, and boiled whole with salt beef.

"The diseases of carrots are only such as are common to most plants, such as mildew, insects, &c. The mildew and worms at the root frequently injure crops, and are to be guarded against, as far as practicable, by a proper choice, soil, season of sowing, and after-culture."—*Loudon.*

CAULIFLOWER.

Brassica Oleracea.—*Chou-fleur*, Fr.—*Blumenkohl*, Ger.

THE cauliflower is one of the most delicate and curious of the whole of the *brassica* tribe; the flower buds forming a close, firm cluster or head, white and delicate, for the sake of which the plant is cultivated.

Varieties.—Early (for the first, early crops).—Later, or large (for principal crops).

"*Propagation and Soil*.—The cauliflower is raised from seed, of which half an ounce is sufficient for a seed-bed four feet and a half wide, by ten in length. The soil for the seed-bed may be light, but, for final transplanting, it can hardly be too rich, the cauliflower, like the vine, being reputed a 'rough feeder.' Cleanings of streets, cesspools, &c., ought, therefore, to be liberally supplied during the growth of the plants, when very large heads are desired.

"*Times of sowing*.—The early and main superior crop, brought to fruit by the longest nursery attendance; the late summer succession crop, raised by the shortest course; and the Michaelmas (29th of Sept.) crop, obtained at the least expense, are sown, respectively, at three different seasons. The principal sowing is made about the end of the third week in August, or a day or two before or after the 21st, to raise plants to stand over winter, under frames, hand-glasses, or half-sheltered warm borders, for the early and

main superior crops next summer. A secondary sowing in February or March, for succession, and late inferior crops the same year in summer and autumn. A final sowing, near the close of May, for ordinary crops, to yield fruit the following autumn and winter. The seedlings, protected with glass frames, generally grow too gross in the stems, which become partly blackened, and the plants, being thus unhealthy, are not fit for planting out. Late-raised seedlings, which spend the winter in the open border, uniformly become the large and finest table cauliflowers during the summer, though they certainly do not come in quite so early. Cauliflower plants, it is probable, are often killed with too much attention. Seedlings raised late in autumn seem to be very tenacious of life."—*Caled. Hort. Mem.* iii, 192. "A method of producing cauliflowers pretty early, and with great certainty, is this:—The plants are set in small pots in the winter season, and kept in any convenient part of the floor of a viney or other glazed house. In the beginning of March they are taken out of the pots with the ball of earth attached, and planted in the open ground. If they be here protected against severe frosts with bell-glass covers, they come into head in the course of April, if the weather prove favorable."—Neill, in *Edin. Encyc.*

Drummond, of the Cork botanic garden, protects cauliflower plants during winter by planting them in excavations made in the common soil of the garden, and covered with frames thatched with long, straight wheat straw. He uncovers constantly in mild weather, whether nights or days.—*Hort. Trans.* v, 369.

For after-culture, preservation through winter, saving seed, &c., proceed as with the common white cabbage.

Use.—"Among the succulent plants produced in our climate, this doubtless is one of the most nourishing, and likewise the best adapted to tender organs of digestion, especially in valetudinarians and invalids; such persons however, ought to eat it with the addition of some aromatic spice, such as pounded cardamoma, or caraway, or a small proportion of bread. To make the cauliflower blanch handsomely, the gardeners tie over the heads of the plant.

"*To prepare cauliflowers.*—Let the cauliflowers first be parboiled; next they must be immersed in cold, hard water for some time, till they be nearly wanted for the table; thus, on being boiled for a few minutes, they will become more firm and crisp than if cooked in the usual manner."—*Dom. Encyc.*

Neill (in *Edinburgh Encyc.*) observes, "These heads or flowers being boiled, generally wrapped in a clean linen cloth, are served up as a most delicate vegetable dish. Cauliflower is a particular favorite in this country. 'Of all the flowers in the garden,' Dr. Johnson used to say, 'I like the cauliflower.' For the early supply of the London market, very great quantities of cauliflower are fostered under hand-glasses during winter and the first

part of spring; and to behold some acres overspread with such glasses, gives the stranger a forcible idea of the riches and luxury of the metropolis."

CELERY.

Apium Graveolens.—*Celeri*, Fr.—*Sellerie*, Ger.

CELERY is a hardy biennial plant, a native of Great Britain, and, when in its wild state, it is denominated *smallage*. The root, in its wild state, is thick and fibrous. The stalk is bushy and furrowed, and attains the height of two or three feet. The leaves are wedge-shaped, and the flowers yellow, which are produced in August. The varieties usually cultivated are, the

White solid,	Italian, and
Rose-colored solid,	Celeriac, or turnip-rooted.

Propagation.—All the sorts are raised from seed; and half an ounce is reckoned sufficient for a seed-bed four feet and a half wide by ten feet in length, of the upright sorts; but for celeriac, a quarter of an ounce will be enough for a bed four feet square.

Soil.—Celery delights in a soil rather moist, rich in vegetable mould, but not rank from new, unrotted dung.

Times of sowing.—“The most forward crop is slightly forced; any of the varieties may be sown in the spring, in the open garden, at two or three different times, from the 21st of March till the first week in May; but the principal sowing should be made in the first fortnight in April. Sow in beds of light mellow earth, and rake in the seed lightly and regularly. In very dry weather, give moderate watering both before and after the plants come up. When they are two, three, or four inches high, thin the seed-bed, and prick out a quantity, at successive times, into intermediate beds, three or four inches asunder. Water those removed until they have struck” [taken root].—*Loudon*.

Transplanting into trenches.—“When either the plants left in the seed-bed, or those removed, are from six to twelve inches high, or when the latter have acquired a stocky growth, by four or five weeks' nurture in the intermediate bed, transplant them into trenches for blanching. For this purpose, allot an open compartment. Mark out the trenches a foot wide, and from three to three and a half distance; dig out each trench lengthwise, ten or twelve inches in width, and a light spit deep, that is, six or eight inches. Lay the earth dug out equally on each side of the trench; put about three inches of very rotten dung into the trench, then pare the sides, and dig the dung and parings with an inch or two of the loose mould at the bottom. Trim the tops and roots of the plants, and then set them in single rows

in the ground at a distance from each other, so as to have water in plenty, and the soil may be dry, and the plants will grow. When the plants are about a foot high, earth to each plant a small quantity of manure, being careful not to cover them up too much. When the plants are about ten days, till the ground round about the plants in the morning, and then the waterings

are to be stopped, and dig clean manure round about the plants, and may be drawn

out in the morning, so as to let the frost take up the manure, and then cover them with earth. Those left in the ground will be blanched. Cobbett says, "A bed of turnips, a foot wide, and a foot long, when formed into a square, will yield a turnip, going an inch and a half deep, and well with pegs, and will be fit for market on the occasional appearance of frost, and will produce."

Turnips are to be sown in the spring where the ground is warm, and to be planted out in the plants in the

autumn, and to be left in the ground for the other winter, and to be harvested into a flat bed, and to be covered over with earth, and not to be watered as soon as the frost appears, but the other day, or, when the frost is very severe, to be cut in size, or, when the frost is very severe, to be occasionally hoed. Cobbett says, "In the United States, that the turnip is a plant which is peculiar to the country, and that the richness of soil is the cause of its being so well known. The bulbs four or

five inches in diameter, and the root, from August to November, is about two feet long, the unblanched turnip, and the blanched turnip, or the green turnip, and the white turnip. The root only is to be eaten, and the blanched turnip, (Hort. Trans

vol. iii), 'it is excellent in soups, in which, whether white or brown, slices of it are used as ingredients, and readily impart their flavor. With the Germans, it is also a common salad, for which the roots are prepared by boiling, until a fork will pass easily through them: after they are boiled, and become cold, they are eaten with oil and vinegar. They are also sometimes served up at table, stewed with rich sauces. In all cases, before they are boiled, the coat and fibers of the roots, which are very strong, are cut away; and the root is put into cold water, on the fire, not in water previously boiling.'"
Loudon.

CHAMOMILE.

Anthemis nobilis.

Varieties.—These are the common single and double-flowered.

Soil and culture.—This herb delights in a poor, sandy soil. "Both kinds are propagated by parting the roots, or by slips of the rooted offsets or of the runners. Detach them with roots in little tufty sets in March, April or May, and plant them from eight to twelve inches asunder, giving water. The flowers should be gathered in their prime, in June or July, just when full-blown. Let them be spread to dry in a shady place; then put them into paper bags, and house them for use."—*Abercrombie.*

"*Use.*—It is cultivated on account of the flower, which is a safe bitter and stomachic, and much used under the name of chamomile-tea. The double-flowering variety, though more beautiful than the single-flowered, is less useful; the aromatic principle not residing in the floscules of the ray, the multiplication of which constitutes the double flower. The double sort, however, is most cultivated by growers.

CHIVE.

Allium schoenoprasum.—*Civette*, Fr.—*Binsenlauch*, Ger.

"*The chive*, or *cive*, is a hardy perennial plant, a native of Britain, and found in meadows and pastures, though but rarely. The leaves rise from many small bulbous roots connected in bunches; are awl-shaped, thread-like, and produced in tufts. The flowers are white, tinged with reddish-purple, and appear on round stalks in June."—*Loudon.* It is of common and easy cultivation.

CORIANDER.

Coriandrum sativum.

CORIANDER is a hardy annual plant, which originated in the East.

Culture.—This plant delights in a sandy loam. It is raised from seeds, which may be sown in March, or as soon as the frost will permit, when the weather is mild and dry. The quantity of seed requisite for a bed six feet long and four feet wide, sown in rows nine inches apart, is half an ounce. The seed should be buried half an inch.

Use.—The seeds have a pleasant flavor, and, when incrusted with sugar, are sold by the confectioners under the name of *coriander confits*. They are also used in the bitter infusions and preparations of senna, the disagreeable taste of which they completely overcome, and for various other purposes, both by druggists and distillers.

CRESS, WATER.

Sisymbrium nasturtium.

A GENUS of plants, of which the principal is the common water-cress, found in springs and brooks. It is perennial, and produces white flowers that are in bloom in June or July. Lasteyrie tells us, that in Germany, great pains are taken to propagate the water-cress, and gives the following account of their mode of doing it: "The water," he says, "most favorable for its production, is that in which it grows naturally, and which in winter preserves heat enough to prevent it from freezing. The situation on which to form a cress plantation ought to have a little slope or inclination, because water in a state of repose, alters the flavor of the plant. Having chosen the place, it is formed into heights and hollows alternately; the latter are destined for the cresses, and the former for the culture of other plants. The size of the hollows is made to depend on the quantity of water you can bring into them, and the demand for the article to be raised. If the soil of the hollows is not sufficiently rich, better earth must be brought to amend it, and if the bottom be marshy, you throw over it some inches of sand. Your next step is to cover it with water for some hours, after which you drain and sow or plant. At the end of a few days, you let in the water, and drain as before, and continue these processes until the cresses appear, if sown, or until they have taken root, if planted. The quantity of water let in is always to be regulated by the growth of the plant; for though it cannot live

but in water, it will not bear to be long covered with it. Planting is always surer than sowing, and is therefore preferred. The epoch for this is either March or August. The distance between the plants should not be less than ten or fifteen inches. Moving the earth about their roots with the hoe, from time to time, is useful; but for the rest, (having once taken root,) no further care is necessary. A cress plantation is in full bearing the second year, and lasts a long time. When it begins to fail, it may be renewed by taking off a foot of the surface soil of the old beds and replacing it with good and fresh earth. In winter, the beds are covered more deeply with water, which protects the plant against the frost."

The same writer informs us how they manage their cress plantations near Paris. "Having there," he says, "no running water, they cultivate it in the neighborhood of wells, and water it every day. The cress vegetates promptly, but becomes acrid in taste. They accordingly prefer sowing to planting, because if cut when only six inches high, and treated in all respects as an annual, it has least of this pungency."—*Armstrong's Treatise*.

Loudon says, "Some market gardeners, who can command a small strain of water, grow the water-cress in beds sunk about a foot in a retentive soil, with a very gentle slope from one end to the other. Along the bottom of this bed, which may be of any convenient breadth and length, chalk or gravel is deposited, and plants are inserted about six inches' distance every way. Then, according to the slope and length of the bed, dams are made six inches high across it, at intervals; so that, when these dams are full, the water may rise not less than three inches on all the plants included in each. The water being turned on will circulate from dam to dam; and the plants, if not allowed to run to flower, will afford abundance of young tops in all but the winter months. A stream of water, no larger than what will fill a pipe of one inch bore, will, if not absorbed by the soil, suffice to irrigate in this way an eighth of an acre. As some of the plants are apt to rot off in winter, the plantation should be laid dry two or three times a year, and all weeds and decayed parts removed, and vacancies filled up. Cress grown in this way, however, is far inferior to that grown in a living stream flowing over gravel or chalk."

Use.—"Water-cresses are universally used and eaten as an early and wholesome spring salad. Being an excellent anti-scorbutic and stomachic, they are nearly allied to scurvy grass, but do not possess so great a degree of acrimony. They are also supposed to purify the blood and humors, and to open visceral obstructions."—*Dom. Encyc.*

CRESS, GARDEN.

Lepidium sativum.—*Cresson*, Fr.—*Kresse*, Ger.

THE garden-cress is a hardy annual plant, cultivated, says Loudon, since 1584; but its native country is unknown.

Varieties.—

Curled, or pepperglass. | Broad-leaved garden cress.

This plant is raised from seed, of which one ounce will suffice for a bed of four feet square.

Times of sowing, and site of the crop.—Cress should be raised three or four times every month, as it may be in demand, to have young crops constantly in succession. Allot some warm situation for early spring sowing; and, if the weather be cold, either put on a spare frame, or cover with matting between sunset and sunrise. For autumnal sowings, when cold weather is approaching, allot some warm borders, and give occasional protection. “The cress,” says Loudon, “is often raised on porous earthenware vessels, of a conical form, having small gutters on the sides for retaining the seeds. These are called *pyramids*, are somewhat ornamental in winter, and afford repeated gatherings.”

Process in sowing, and subsequent culture.—“Having allotted a fine, mellow soil, to receive the seed, dig the surface, and rake it finally, preparatory to sowing, which mostly perform in small, flat, shallow drills, four, five, or six inches asunder. Sow the seed very thickly, and earth over very lightly, or but just thinly cover. Give occasional waterings in warm, dry seasons.”

Taking the crop.—“To gather cress in perfection, cut them while quite young, either clean to the root, or only the tops of advanced plants. They will shoot again for future gathering, but the leaves will be hotter, and not so mild and tender as those of younger plants.”

To save seed.—“Either sow a portion in the spring for that purpose, or leave some rows of any overgrown old crop in April or May. The plants will yield seed in autumn.”

CUCUMBER.

Cucumis sativa.—*Concombre*, Fr.—*Gurke*, Ger.

AMONG the varieties of this species of plants, are

Early Green Cluster,	Long prickly,
Early frame,	White spined,
Long green Turkey,	Short prickly,
Long white Turkey,	Small girkin, or West India.

Soil.—In our climate, cucumbers will grow in any soil, though not with the same degree of vigor, provided they be supplied with a sufficiency of heat, light, water, and air. It is an object with many market gardeners and others, to produce cucumbers at an early period, and for this purpose artificial heat is necessary. For early forcing, Abercrombie recommends a mould or compost, of the following materials: “one third of rich top spit earth, from an upland pasture, one half of vegetable mould, and one sixth of well decomposed horse-dung, with a small quantity of sand.

Time of beginning to force.—Abercrombie says, “Managers, who have to provide against demands for early cucumbers, must raise seedlings from twelve to ten weeks before the fruit will be required, according to the length of the days in the interval. In proportion as the entire course embraces a greater part of mid winter, the liability of failure from obstacles in the weather will be greater. The last fortnight in January, or first week of February, is a good time for beginning to force the most early crop. In the subsequent months, both main and secondary crops may be started as required and will come forward more freely. To have a constant succession, seedlings should be originated twice a month. As the course of forcing more coincides with the natural growing season, the length of it will be reduced to eight, seven, or six weeks.” Nicol recommends the middle of January. He says, “Some begin sooner, but it is striving hard against the stream to little purpose. If the dung be prepared, and the bed be got ready, so as to sow about the 1st of February, the success will be often greater than by sowing a month earlier.” Besides, cucumbers, produced altogether by the heat of dung, without the aid of the sun, are less wholesome and palatable than those which Nature affords in the due course of her operations.

Sorts.—Abercrombie recommends “the short prickly for very early fruit, and the long prickly kinds for the chief early and main summer crops.” M’Phail prefers “the green cucumber with black prickles, as best for forcing. When fit for table, it runs from six to nine inches long, and, when ripe, runs to about eighteen or twenty inches long.”

Choice of seeds.—“It is advisable,” Abercrombie observes, “to have seed from two, at least, to four years old, in preference to newer seed, which is

apt to run luxuriantly in vine, and the plants from it do not show fruit so soon nor so abundantly as those from seed of a greater age. But when seed has been kept more than four years, it is sometimes found to be too much weakened." Mr. Armstrong says, "A debate has long existed, on the preference to be given to *old* or *new* seeds, and which, like many others, appears to be interminable. The Abbé Rozier and his followers think that the most vigorous plants of all species and kinds are the best, and, accordingly, prefer new seeds, because more likely to produce such than old ones: while, on the other hand, their opponents maintain, that plants may have too much vigor, as well as too little; and that, whenever an excess of vigor exists, according to all vegetable analogy, it shows itself in the production of stems and leaves, not in that of flowers and fruits—whence they conclude, that old cucumber seeds, (like those of all the rest of the *cucurbitaceæ* family,) are better than new, because *less vigorous*. The best practical use to be made of this controversy is to sow *old* seeds in the *spring*, when vegetation is most powerful, and *new* ones in *July* when it begins to abate."

Forcing cucumbers.—"Towards the latter end of January, a quantity of fresh horse dung should be procured with the litter among it, to which a small portion of sea-coal ashes may well be added. In the course of four or five days, the dung begins to heat, when a little of it may be drawn flat on the outside, and covered two inches thick with good earth; over which a bell glass ought to be placed; and two days after, when the soil is warm, the seeds should be sown, covered with fresh mould one-fourth of an inch thick, and the glass again set over it. This must be screened by a mat during the night, and in four days the young plants will germinate. As soon as they appear, the rest of the dung must be beaten close together into a bed for one or two more lights, which bed should be three feet thick, and covered three inches deep with fine, fresh earth; the frame is then to be put on; and during the night, or in bad weather, sheltered with mats. When the soil is hot enough, the young plants must be removed into it, and set at two inches distance, the glasses being occasionally raised to admit fresh air, and also frequently turned, to prevent the wet steam of the dung from dropping down on the plants. These ought to be watered at stated times, with tepid or luke-warm water; and, as they increase in size, should be earthed up; an operation which will considerably augment their strength. If the bed be not hot enough, fresh litter should be laid round its sides; but if it be too warm, it should be perforated with a stake to give vent to the heat; and, as soon as the bed acquires a proper temperature, the holes are to be closed up with fresh earth. When the plants begin to shoot their third or rough leaf, another bed should be prepared for them, similar to the first; and, when the soil is thoroughly warmed, they should be transplanted into it, in holes about a foot deep, and nine inches broad, filled with light, fine, fresh mould, laid in a hollow, circular form. In each of these holes four plants

should be set, and shaded for two or three days from the heat of the sun, that they may strike root; after which time it will be useful to expose them to the sun and air, as often as the weather will permit. When they have attained the height of four or five inches, they should be gently fastened down to the soil, in different directions; and the branches afterwards produced ought to be treated in a similar manner, as it will much contribute to forward their maturity. In the course of a month the flowers will appear, and, shortly after, the rudiments of the fruit. The glasses should now be carefully covered during the night, and the plants gently sprinkled with water in the day time. These will produce fruit till midsummer, and may be succeeded by a second crop, which is to be raised nearly in the same manner as the earlier cucumbers, with this only difference, that the former should be sown toward the end of March, or the beginning of April, and that it requires less care and attention."—*Dom. Encyc.*

The smallest degree of heat for forcing cucumber plants, at the coldest time of night, is 58 degrees; and the greatest heat necessary in the day time is 65 degrees.

"Well preparing the dung is of the greatest importance in forcing the cucumber, and if not done before it is made into a bed, it cannot be done after, as it requires turning and watering to cause it to ferment freely and sweetly; fresh dung from the stable will require at least six weeks' preparation before it will be fit to receive the plants. A month before it is made into a bed, it should be laid into a heap, turned three times, and well shaken to pieces with a fork, and the outsides of the heap turned into the middle, and the middle to the outsides, that the whole may have a regular fermentation; and if any appear dry, it should be made wet, keeping it always between the two extremes of wet and dry. A dry spot of ground should be chosen to prepare the dung on, that the water may drain away from the bottom of the heap. The dung having been a month in heap, I make the bed as follows:—I form a stratum one foot high, of wood of any kind, but if large the better; (old roots of trees, or any other of little value will do;) this is to drain the water from the bottom of the bed; for, after a month's preparation, with every care, it will frequently heat itself dry, and require water in large quantities, which, if not allowed to pass off freely, will cause an unwholesome steam to rise, in which the cucumber-plant will not grow freely: on this bottom of wood I make the bed, four feet high, with dung, gently beating it down with a fork: this is done about the 1st November, and by the month of February the four feet of dung will not be more than two feet thick, which, with the foot of wood at the bottom, will make the bed three feet high; this I consider a good height, for, if lower, it cannot be so well heated by linings, which is the only method of warming it in the months of February and March, as by that time the first heat of the bed will have quite declined. Having made the bed, I put on the frames and lights, which I shut close till the heat rises.

I then give air night and day, sufficient to allow the steam to pass off, and once in two days I fork the surface over, about nine inches deep, to sweeten it, and if, in the operation, I find any part dry, I carefully wet it. The bed being quite sweet, I prepare it for the mould, by making the middle about eight inches lower than the sides, as the sides are liable, from the weight of the frames, to settle faster than the middle, which often causes the hills of earth to crack, by which the roots of the plants are greatly injured."—*Hort. Trans.* vol. iii, p. 147.

Mr. Cobbett says, "If you wish to have cucumbers a *month earlier* than the natural ground will bring them, do this:—Make a hole, and put into it a little hot dung; let the hole be under a warm fence. Put six inches deep of fine rich earth on the dung. Sow a parcel of seeds in this earth; and cover at night with a bit of carpet, or sail-cloth, having first fixed some hoops over this little bed. Before the plants show the *rough* leaf, plant two into a little flower-pot, and fill as many pots in this way as you please. Have a larger bed ready to put the pots into, and covered with earth, so that the pots may be plunged in the earth up to their tops. Cover this bed like the last. When the plants have got two rough leaves out, they will begin to make a *shoot* in the middle. Pinch that short off. Let them stand in this bed, till your cucumbers *sown in the natural ground come up*; then make some little holes in good, rich land, and, taking a pot at time, turn out the *ball*, and fix it in the hole. These plants will bear a *month sooner* than those sown in the natural ground; and a *square yard* will contain thirty-six pots, and will, of course, furnish plants for thirty-six hills of cucumbers, which, if well managed, will keep on bearing till September. Those who have *hot-bed frames*, or *hand-lights*, will do this matter very easily. The cucumber plant is very tender and juicy; and, therefore, when the seedlings are put into the pots, they should be *watered* and *shaded* for a day or two; when the balls are turned into the ground, they should be *watered*, and shaded with a bough for one day. That will be enough.—I have one observation to make upon the cultivation of cucumbers, melons of all sorts, and that of all the pumpkin and squash tribe; and that is, that it is a great error to sow them *too thick*. One plant in a hill is enough; and I would put *two into a pot*, merely as a bar against accidents. One will bring more weight of fruit than two, (if standing near each other,) two more than three, and so on, till you come to fifty in a square foot; and then you will have no fruit at all! Let any one make the experiment, and he will find this observation mathematically true. When cucumbers are left eight or ten plants in a hill, they never shoot *strongly*. Their vines are poor and weak. The leaves become yellow; and, if they bear at all, it is poor, tasteless fruit that they produce. Their bearing is over in a few weeks. Whereas, a single plant, in the same space, will send its fine green vines all around it to a great distance, and, if no fruit be left to *ripen*, will keep bearing till the white frosts come in the fall.—The

roots of a cucumber will go ten feet, in fine earth, in every direction. Judge then, how ten plants, standing close to one another, must produce mutual starvation!"

Mr. Armstrong has the following observations with regard to *early* cucumbers: "To obtain these, we must have recourse to artificial heat; and with the less reluctance, as, of all plants, the cucumber is that with which it best agrees. To this end, therefore, scoop as many large turnips as you propose to have *hills*; fill these with good garden mould, sow in each three or four seeds, and plunge them into a hot-bed. The advantage of the scooped turnip, as a seed-bed, over pots or vases, will now appear; for, instead of the ordinary difficulty of separating the mass of earth and the plant from the pot that contained them, and without injury to either, we re-enter both pot and plant, *and* even find in the one an additional nutriment for the other. The subsequent treatment does not differ at all from that of plants sown and cultivated in the open air."—*Mem. of N. Y. Board of Agr.* vol. ii, p. 115.

Training.—To force the cucumbers into early fruit, Abercrombie directs to "stop the runners as soon as the plants have made two rough leaves: as the bud that produces the runner is disclosed at the base of the second rough leaf, it may be cut off or picked out; or, if the runner has already started, it may be pinched off close. This is called stopping at the first joint, and is necessary to promote a stronger, stocky growth, and an emission of fruitful laterals; and from these the prolific runners will be successively produced. The vines, without the process of stopping, would generally be both weaker, and so deficient in fertile runners, that they would sometimes extend two or three feet without showing fruit. When plants, which have been once stopped, have extended the first runners to three joints without showing fruit, they are to be again stopped for the purpose of strengthening the plant, and disposing it for bearing. As fertile runners extend, train them out regularly along the surface, fastening them down neatly with pegs."

Upright training.—Cucumber plants being climbers by means of their tendrils, some branchy sticks being placed to any advancing runners, they will ascend, and produce fruit at a distance from the ground, of a clean growth, free from spots, and well flavored. "Mr. J. W. of Philadelphia informed Dr. Mease, that he enriched the ground near the trunk of a peach tree, and sowed some cucumber seed, which came up very abundantly. He pulled up all the plants but one, and permitted the vine to run up the tree. It bore 150 cucumbers. The numerous creepers with which the cucumber abounds, and the result of this experiment, would seem to point out the climbing nature of the plant, and the great advantage arising from permitting it to attach itself to a frame or tree, instead of confining it to the ground."—*Dom. Encyc.*

Setting the fruit.—"The cucumber," Abercrombie observes, "bears male

and female blossoms distinctly on the same plant. The latter only produce the fruit, which appears first in miniature, close under the base, even before the flower expands. There is never any in the males, but these are placed in the vicinity of the females, and are absolutely necessary, by the dispersion of their farina, to impregnate the female blossoms; the fruit of which will not otherwise swell to its full size, and the seeds will be abortive. The early plants under glass, not having the full current of the natural air, nor the assistance of bees and other winged insects to convey the farina, the artificial aid of the cultivator is necessary to effect the impregnation. At the time of fructification, watch the plants daily; and as soon as a female flower and some male blossoms are fully expanded, proceed to set the fruit the same day, or next morning at turtlest. Take off a male blossom, detaching it with part of the footstalk. Hold this between the finger and thumb; pull away the flower-leaf close to the stamens and anthers or central part, which apply close to the stigma or bosom of the female flower, twirling it a little about, to discharge thereon some particles of the fertilizing powder. Proceed thus to set every fruit, as the flowers of both sorts open, while of a lively, full expansion; and generally perform it in the early part of the day; using a fresh male, if possible, for each impregnation, as the males are usually more abundant than the female blossoms. In consequence, the young fruit will soon be observed to swell freely. Cucumbers attain the proper size for gathering in about fifteen, eighteen, or twenty days from the time of setting; and often in succession, for two or three months or more, in the same bed, by good culture. The above artificial operation will be found both necessary and effectual in forcing the cucumber, between the decline of autumn and May, while the plants are mostly shut under glass. In plants more freely exposed to the free air, in the increasing warmth of spring, and in having the full open air in summer, from June or July till September, the impregnation is effected mostly or wholly by nature. The male flowers, being by some ignorantly denominated false blossoms, are often plucked wholly off as useless, under a notion of strengthening the plant: but this should not be generally done. Where crowded too thick in clusters some may be thinned out moderately; but their agency being absolutely necessary in fertilizing the females, they should only be displaced as they begin to decay, except where they are superabundant."

Principal summer crop.—“The ground being dug and smoothed, line it into squares of six feet. In the center of each, dig a hole about fourteen inches deep; fill this with well rotted dung, and sow on it five or six cucumber seeds: cover these with mould, and, when they rise and take a rough leaf, select two to each hill, and draw out the remainder. This sowing cannot be safely made in our climate till the 10th of May. For the fall and pickling crops, you must sow the first or second week in July.”—*Armstrong.*

Those cucumbers, which are sowed as late as July, will not require top-

pmg or cutting off the runners as before directed, for at this season vegetation will be less vigorous and there will be less danger of the plant running too much to vine.

Raising plants from cuttings.—“Instead of raising cucumber plants from seed, they may be raised from cuttings, and thus kept on from year to year in the following manner:—Take a shoot that is just ready for stopping, cut it off just below the joint, behind the joint before which the shoot should have been stopped; then cut smooth the lower end of the shoot or cutting, and stick it into fine leaf or other rich mould about an inch deep, and give it plenty of heat, and shade it from the rays of the sun till it be fairly struck. By this method, as well as by that of laying, cucumbers may be propagated.

“Mearns, gardener at Shobden Court, near Leominster, propagates his cucumber-plants for a winter crop in this way, and ‘finds that the plants raised from cuttings are less succulent, and therefore do not so readily damp off, or suffer from the low temperature to which they are liable to be exposed in severe weather; that they come into bearing immediately, as they have formed roots of sufficient strength to support their fruit, and do not run so much to barren vine as seedlings are apt to do.’ He takes the cuttings from the tops of the bearing shoots, and plants them in pots nine inches deep, half filled with mould. He then waters them, covers the tops of the pots with flat pieces of glass, and plunges them into a gentle bottom heat. ‘The sides of the pot act as a sufficient shade for the cuttings during the time they are striking, and the flat glass, in this and other operations, answers all the purposes of bell-glasses. The cuttings form roots, and are ready to put off in less than a fortnight.’—*Hort. Trans.* vol. iv, p. 411.

Cucumbers increased by layers.—“As soon as several flower-buds appear on a plant, bend the second or third joint of a branch below the blossom, fasten it firmly into the ground, and cut off the capillary point of the plant; it speedily takes root, and must be separated from the parent stock; as each root has only to supply a few fruits with nourishment, it saves room, labor and time, and affords a constant supply for eight, twelve, and more months, which is not so liable to degenerate as if they were raised from a variety of seeds”—*Gleanings in Husbandry*.

Culture.—In the culture of all the crops, give proper supplies of water in dry, warm weather, two or three times a week, or every day when very warm and dry. If the heat in the hot-beds, after three or four weeks or more, be much declined, and the nights or general season remain cold, let a moderate lining of hot dung be applied to both sides; which will not only cause a reviving heat, but widen the bed for the roots and runners of the plants to extend.

Insects.—“The fly, which is often very destructive to cucumbers, melons and pumpkins, may be killed by sprinkling a mixture of tobacco water and red pepper over the vines.”—*Dom. Encyc.* Sprinkle the plants with a strong

infusion of elder leaves; that of hops and of walnut-leaves is likewise recommended; or, suspend a diamond-formed piece of white paper, shingle, or other piece of wood, by a thread, tied to the end of a stick stuck in the ground at a small distance from the hill, so that the paper shall hang directly over the hill and near the plants. The air, by constantly vibrating the paper or shingle, will have a tendency to prevent insects from alighting on the plants. The surest way, however, is to inclose the hills with frames covered with gauze, or other cloth of a light texture. The following method of making sieves, or boxes, to protect cucumber vines, melon vines, &c. against the yellow bug, &c. was communicated to the editor of the *N. E. Farmer* by Mr. Levi Bartlett, of Warner, N. H., and published in that paper, vol. ii, p. 305.

"Take a strip of pine board (about three fourths of an inch in thickness is most suitable) eight or ten feet in length, and four or five inches in width—plow one edge of it with a carpenter's plow or match plane—then mark off an equal number of side and end pieces; before sawing the side pieces, run a brad-awl through where you want to drive your nails, as it is not so likely to split as after it is sawed. The side pieces eleven inches long—ends eight inches long. They must be of this particular size, because one yard of millinet will just cover nine boxes; or a third of a yard will make three covers. After having nailed your boxes, and divided your millinet, have some thin strips or tongues, as the carpenters call them. Press these with the edges of the covers into the groove, which fastens them much cheaper and more expeditiously than small nails. I made about twenty last season, and they effectually secured them from the yellow bug, and (by sinking the edges of them in the earth a little) from worms. But if they were of no use but to guard against insects, they would be worth having, as they keep off the cold winds, and greatly promote the growth of the vines in the early part of the season."

To save seed.—"Select some best summer fruit from good, productive plants, which permit to continue in full growth till they become yellow. Then cut them from the vine, and place them upright on end, in the full sun, for two or three weeks, when they may be cut open, and the seed washed out from the pulp; spread it to dry and harden; then put it up in papers or bags for future sowing. It will remain good for many years; and seed of three or four years' keeping is preferable for early frame crops."—*Abercrombie.*

Uses.—"Cucumbers are a salubrious, cooling fruit, and may be safely allowed to consumptive patients, as they sweeten acrid humors, at the same time are gently laxative; but being in a considerable degree acescent, and sometimes attended with flatulency and diarrhea, such effects may be prevented by eating them with great moderation, or with the addition of vinegar and pepper, which counteract their natural coldness. If properly pickled

(without coloring them with that poisonous metal, copper, or rendering them too acrid with stimulant spices,) they are an excellent antiseptic; yet we consider them highly improper either for children or wet nurses."—*Dom. Encyc.*

DANDELION.

Leontodon Taraxacum.

THIS is a hardy perennial plant, which is found growing spontaneously in Great Britain and the United States. Loudon says that this vegetable, "though regularly produced in London market, is seldom or never cultivated, being generally to be found in sufficient luxuriance by the sides of hedges and dry ditches. It might easily be propagated either by seeds or roots, and, if introduced as a garden plant, should have a rich, deep soil, and be carefully tied up and earthed round to blanch it effectually. Cut off all the flowers as they appear, to prevent the dispersion of the seed and the weakening of the plant. When salad is scarce, the dandelion might be dug up from road-sides in winter, and forced in pots like succory.

"*Use.*—The leaves in early spring, when just unfolding, afford a very good ingredient in salads. The French sometimes eat the young roots, and the etiolated [blanched or whitened] leaves with thin slices of bread and butter. When blanched, the leaves considerably resemble those of endive in taste. The root is considered an equally good substitute for coffee as chicory, and may, like that plant, be stored in cellars and barrels, for producing winter salad."—*Caled. Hort. Mem.* iv, 138. In this country, the dandelion has, we believe, been used for greens, or pot-herbs only, and we have never known it subjected to cultivation.

EGG-PLANT.

Solanum Melongena.—Melongene, Fr.—Tollapfel, Ger.

"**THERE** are two varieties of this plant, the white-fruited and the purple, cultivated for culinary purposes; the latter kind is preferable, and, when sliced and nicely fried, approaches, both in taste and flavor, nearer to that of a very nice fried oyster than, perhaps, any other plant.

"This delicious vegetable may be propagated by sowing the seed on a slight hot-bed the beginning of April or in March; and towards the latter

part of May they should be planted in a rich, warm piece of ground, at the distance of two feet and a half asunder, every way, for the purple, or two feet for the white kind; and if kept clean, and a little earth be drawn up to their stems, when about a foot high, they will produce plenty of fruit. Or, the seed may be sown about the end of April, on a warm border, and planted out finally the beginning of June; but these will be rather late, and not produce fruit so abundantly, in the Middle or Eastern States as by the former method."—*M'Mahon.*

ENDIVE.

Chicorium Endivia.—*Chicorée*, Fr.—*Endivie*, Ger.

The endive is a hardy annual, a native of China and Japan, and introduced into Great Britain in 1548. The varieties are

Green curled leaves, | White curled leaves, | Broad-leaved Batavian.

Estimate of sorts.—"All the sorts are eligible for culture; but allot, principally, the green curled for the main crops of autumn and winter endive, tais being of the most stocky, full growth, and hardiest to stand severe weather. As to the others, allot a smaller portion of the white curled for early summer and autumn use; of the broad-leaved kind, provide a moderate crop for autumn, till November or December; being by some esteemed preferable for stews and soups, though not much used in salads."

Propagation.—All the varieties are raised from seed, of which, for a seed-bed four feet by ten in length, half an ounce is sufficient.

Times of sowing.—"The proper seasons are—May, for a smaller early crop, and principally June and July to the beginning of August; for full and successive crops, all autumn and winter, till the following spring: for, if sown earlier than the middle of May or beginning of June, they will mostly run to stalk the same season before attaining mature, useful growth. If any are required for early young summer endive, sow only a small portion of the white curled in April or May, as the plants will soon run to seed. In the middle or towards the end of May, you may begin sowing moderately of the different sorts; but do not sow fully till nearly the middle of June, that the plants may stand without running to seed the same year. About the twelfth and twenty-fifth of that month, also at the beginning and middle of July, sow the main and successive crops, for autumn and winter; and a finer smaller sowing about the beginning of August, for late supplies in the end of winter and following spring.

FENNEL.

Anethum Foeniculum.—*L'Aneth*, Fr.—*Dillkraut*, Ger.

THE fennel is a perennial plant, naturalized in England, and found in chalky soils. The plant rises with finely cut leaves, and capillary leaflets, on a smooth, dark-green, branched, tubular stalk, to the height of five or six feet. On the summit are produced umbels of gold-colored flowers, in July and August. The whole plant is aromatic, and has long been an inmate of the garden.

“*Use*.—The tender stalks of common fennel are used in salads; the leaves, boiled, enter into many fish sauces; and, raw, are garnishes for several dishes. The blanched stalks of the variety called *finochio* are eaten with oil, vinegar and pepper, as a cold salad, and they are likewise sometimes put into soups.

“*The varieties* are—

The common, or sweet, Dark-green-leaved, Dwarf, or *finochio*. This variety is characterized by a tendency in the stalk to swell to a considerable thickness. This thickened part is blanched by earthing up, and is then very tender. ‘Owing

to the peculiar nature of this variety,’ Neill observes, ‘it is more tender than the common fennel, and often perishes in the course of the winter. Misled by this circumstance, several horticultural writers describe it as an annual species, under the appellation *A. segatum*.

“*Propagation*.—They are all raised from seed, of which half an ounce is sufficient for a seed-bed four feet by six feet. Sometimes, also, they are raised from offsets from the old plants, where only a few are wanted. ‘Sow in the spring in light earth, either in drifts from six to twelve inches apart, or broad-cast and raked in. When the plants are three or four inches high, thin or transplant a quantity fifteen inches asunder. As the roots of old plants divide into side offsets, these may be slipped off in spring, summer, or autumn, and planted a foot apart. They will produce immediate leaves for present supply, and in continuance; or, for an immediate larger supply of leaves, you may procure some established full root’s, and plant as above. Let them be well watered.’

“*Subsequent culture*.—‘The same plants remain several years by the root; but as fennel sends up strong stems for seed in summer, these, or a part of them, should be cut down, to encourage a production of young leaves below, in succession. It is apt to spread more than is desirable, if suffered to seed. The swelling stems of the *finochio* variety, when of some tolerable substance, should be earthed up on each side five or six inches, to blanch them white and tender. This will be effected in ten days or a fortnight; and, by

successive sowings, or cutting down plants during summer, successive crops of blanched stalks may be had from June to December.'

"*To save seed.*—'Permit some of the best stalks to shoot; they will produce large umbels of seed in autumn.'—*Abercrombie.*”—*Loudon.*

LEEK.

Allium Porrum.—*Porreau*, Fr.—*Lauch*, Ger.

THE leek is a hardy biennial, a native of Switzerland. The stem rises three feet, and is leafy at bottom; the leaves an inch wide.

The narrow-leaved, or Flanders leek; | The broad-leaved, or tall, London leek.
The Scotch, or flag, or Musselburgh leek;

Propagation.—"From seed; and, for a bed four feet wide by eight in length, one ounce is requisite."

Soil and site.—"The soil should be light and rich, lying on a dry sub-soil. A rank soil does not suit it, so that, when manure is necessary, well reduced dung, mixed with road drift, is better than dung alone. The situation should be open. Let the ground be dug in the previous autumn, ready for sowing in the spring. For the principal crop allot beds four or five feet wide, and sow in drills, about sixteen inches apart. A small crop may be sown thinly with a main crop of onions, and when the latter are drawn off, the leeks will have room for full growth."

Times of sowing.—"A small first crop may be sown as soon as the ground is dry enough, and the weather sufficiently mild in the spring. The principal crop should be sown the last of April or the beginning of May."

Course of culture.—"When the plants are three or four inches high, weed them clean, and thin them where too much crowded. Water well in dry, hot weather. The leek is much improved in size by transplanting; and those designed for that purpose will be fit to remove when from six to ten inches high. For this purpose, take out a quantity, regularly, from the seed-bed, either in showery weather, or after watering the ground. Trim the long, weak tops of the leaves, and the roots and fibers, and plant them by dibble, in rows, from nine to twelve inches asunder, by six or eight inches in the row, inserting them nearly down to the leaves, or with the neck part mostly into the ground, to whiten it a proportionate length. Press the earth to the fibers with the dibbler, but leave the stem as loose as possible, and, as it were, standing in the center of a hollow cylinder. Give water if the weather be dry. Those remaining in the seed-bed thin to six or eight inches distance. Keep the whole clear from weeds. In hoeing,

loosen the ground about the plants, to promote their free, vigorous growth. Some plant in hollow drills, and earth up, as in celery culture, which produces very large stems."

To save seed.—"Transplant some best, full plants, early in the spring, in a sunny situation, or in a row near a south fence. They will shoot in summer, in single, tall seed-stalks. Support them, as necessary, with stakes; and they will produce ripe seed in September. Cut the ripe heads with part of the stalk to each; tie two or three together, and hang up under cover, to dry and harden the seed thoroughly, when it may be rubbed out, cleaned, and put by for future service."—*Abercrombie*.

Use—"The whole plant is used in soups and stews, but the blanched stem is most esteemed. Leeks formerly constituted an ingredient in the dish called *porridge*, which some suppose to be derived from the Latin *porrum*."—*Loudon*.

"The leaves of this plant possess a flavor similar to that of onions; affording a constant dish at the table of the Egyptians, who chop them up small, and eat them with their meat. They are also in great esteem among the Welsh; and their general utility, as a wholesome pot-herb, renders them a valuable culinary spice."—*Willich*.

LETTUCE.

Lactuca Sativa.—*Laitue*, Fr.—*Gartensalat*, Ger.

LETTUCE is a hardy annual plant, introduced or cultivated in England in 1562, but from what quarter is not known.

Varieties.—These are very numerous; and, from their names, many of them appear to have come originally from the Greek Islands, and the coast of the Levant. Those mentioned in Mr. Russell's Catalogue are—

Early curled Silesia,
Large green-head, or cabbage,
Royal cape (*superior quality*),
India Lettuce (*fine*),
Imperial cabbage,
Hardy green,
Brown Dutch cabbage,

Grand admiral (*large fine cabbage*),
Tennis-ball, or rose,
Magnum bonum Cos,
Brighton Cos,
Ice Cos,
White Cos, or loaf,
Green Cos.

Estimate of sorts.—The cabbage lettuces are round-leaved, growing in a compact, full head, of squat form, close to the ground. All the Cos lettuces, in their general growth, are more or less upright, of an oblong shape. Both kinds have white, close, firm heads, when in perfection; the varieties reach maturity from June till September. Meanwhile, they are occasionally

used in young, open growth. In a very young state, the cabbage-lettuces have a milder, more agreeable taste than the Cos; but when both classes are full grown, the flavor of the Cos is preferred for salads, while the cabbage kinds are more used for soups.

Propagation.—From seed, of which, for a seed-bed four feet wide by ten feet in length, a quarter of an ounce is sufficient, and will produce upwards of four hundred plants.

Soil and situation.—“All the sorts grow freely on any rich, mellow soil, where the sub-soil is dry. For the most part, raise this vegetable as a principal crop, on beds set apart for it, and keep the varieties separate; but to multiply the supplies throughout summer, portions may be sown, thinly intermixed with principal crops of leeks, onions, carrots, and spinach, which will come off before the lettuces are full grown; also with any young perennials, which stand at wide intervals.”

Times of sowing.—To obtain a constant supply of good lettuce, it is serviceable to sow every month, from February (or the opening of spring) to July, for the main summer and autumn crops. For late autumn crops, you may sow in August, and if you have hot-beds, frames, &c., you may sow in September, and so on, through the fall and winter. Early spring lettuce may be sowed so late in the fall as not to come up till spring.

Process of sowing.—Abercrombie says, “The ground should have been broken in the previous digging. Sow broad-cast, moderately thin; rake in lightly, and very even.” Others direct to sow in drills, from a foot to sixteen inches apart. Armstrong observes, that “the straight-leaved sort is best cultivated in broad-cast, and does not require transplanting; but that the curled and head-lettuce cannot succeed without it.”

Management of the summer crop.—“In the successive crops, raised from the opening of spring till the close of summer, when the plants reach about two, three, or four inches' growth, they should be thinned; of those removed, let a requisite number be planted out, from a foot to fifteen inches asunder, to remain for cabbaging. Such as continue in the seed-beds may be either gathered thinning, in progressive stages, till the final reserve advance in close-heading; or, as they increase in size, be planted out at the square distance mentioned above, especially those designed to stand till of stocky growth. In dry weather, water well at transplanting; also weed and hoe the beds thinned, and water them, if necessary. In the first heading-crop of Cos lettuces, when about three parts grown, and beginning to close the inner leaves, a number may be forwarded in cabbaging, by tying the leaves together, moderately close, with strings of bass; the remainder will head and whiten in due time, without this assistance.

Crop raised on heat.—“For an accelerated crop, some may be sown in the beginning or middle of February, on a gentle hot-bed. When the plants are one or two inches high, in March or April, prick a portion either into a

warm border, if a mild season, and let them be shielded with mats during nights and bad weather, or into a frame or slender hot-bed, to bring them more forward. According to their progress in April or May, transplant them into the open garden, from six to twelve inches asunder, to remain for heading."

To save seed.—"Leave or transplant either some of the early winter-standing plants, in March or April, or of the forwardest spring-sown crops, in May, or the beginning of June, fifteen inches asunder. They will produce ripe seed in August or September."—*Abercrombie.*

Use.—The use of lettuce, as a cooling and agreeable salad, is well known; it is also a useful ingredient in soups. It has medical properties, similar to those of opium. The refuse leaves are said to be good food for geese, ducks, and swine

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MELON.

Cucumis melo, and *Cucurbita citrullus*.—*Melon*, Fr.—*Melone*, Ger.

THERE are but two species, the melon with a rough or embroidered coat, called musk-melon, (*cucumis melo*.) and the melon with a smooth skin, called water-melon, (*cucurbita citrullus*.) Of each of the species there are many varieties. Mr. Russell's Catalogue contains the following:—

<i>CUCUMIS MELO.</i>	
Green citron, (<i>finest variety</i> .)	Large cantaleupe,
Murray's pine apple,	Pomegranate.
Persian,	<i>CUCURBITA CITRULLUS.</i>
Nutmeg,	Carolina water,
Minorca,	Long Island do.
	Apple-seed 1 d. (<i>early</i> .)

Seed.—Those who wish to procure melons in perfection, must be careful, in the first place, to procure good seed; secondly, to plant them remote from an inferior sort, as well as from cucumbers, squashes, gourds, and pumpkins; as degeneracy will infallibly be the consequence of inattention to these directions. Abercrombie says, "Seed under the age of two years is apt to run too much to vine, and show only male flowers; but new seed may be mellowed by being carried in the pocket a fortnight or more, till the heat of the body has dried and hardened it. Seed twenty years old has been known to grow, and make fruitful plants; but seed which has been kept three or four years is quite old enough, and less likely to fail than older."

Soil.—Abercrombie says, "The melon will succeed in any unexhausted

loam, rich in vegetable rudiments, with a mixture of sand, but not too light. The following is a good compost ; two thirds of top-spit earth from a sheep-common, adding sharp sand, if the earth contains little or none, till half is sand ; one sixth of vegetable mould, and one sixth of well consumed horse-dung. Or, if the earth is not obtained from a sheep-pasture, rotted sheep-dung may be substituted for the last. The ingredients should have been pulverized and incorporated by long previous exposure and turning over." Dr. Deane observed that "a good manure to be put under melons is an old compost of good loam, with the dung of neat cattle or swine."

Sowing melons in the open ground.—Mr. Armstrong says, "To succeed in raising them for market, the Honfleur method, as described by M. Calvel, may be employed. Select a spot well defended against the north wind, and open to the sun throughout the day. If such is not to be found in your garden, create a temporary and artificial shelter, producing the same effect. At the end of March, form holes two feet in diameter, and distant from each other seven feet and half; fill these with horse-dung and litter, or a mixture of mould, dung and sand. At the end of twenty days, cover the holes, which have been thus filled, with hand-glasses. When the heat rises to 36 of Reaumur, (113 Fahr.) sow the seeds four inches apart; and when the plants have acquired two or three leaves, pinch off the end of the branch or runner. This will produce lateral branches, which must again be pinched off, as soon as they respectively attain to the length of ten inches. When the plant has outgrown the glass, the latter becomes useless, and may be removed; but, should the weather be wet or chilly, substitute coverings of clean straw for that of the glasses, until the young plant becomes strong enough to bear the open air. Two or three melons only are left on each vine, and under each of these is placed a slate, without which the upper and under side will not ripen together. Two months are required to mature them. The people of Honfleur attribute their success in melon-raising to the *sea-vapor* which surrounds them, and to the *saline* particles contained in it, an advantage to be anywhere commanded, by dissolving a little salt in the water employed to moisten them." Whether a bed of slate would prove too warm for the melon in our climate, we cannot say. Perhaps shingles or boards might be preferable, as they would not be rendered so hot by the noon-day sun, nor so cold by the night air. We have never known salt, either in substance or solution, used as a manure for melons, but think it would be well to try its effects.

The following are M'Mahon's directions for raising melons in the open ground. Some time in May, "prepare a place of rich, sandy ground, well exposed to the sun; manure it, and give it a good digging; then mark it out into squares of six feet every way; at the angle of every square dig a hole twelve inches deep, and eighteen over, into which put seven or eight inches deep of old hot-bed dung, or very rotten manure; throw thereon about four

inches of earth, and mix the dung and earth well with the spade; after which draw the remainder of the earth over the mixture, so as to form a round hill about a foot broad at top. Some people use hot stable dung under an idea that its heat would promote the vegetation of the seed: this is a mistaken notion, as, in a few hours, it loses all it had, for want of a sufficient quantity being together to promote fermentation, and becomes a dryish wisp, unfit, at least for the present, to afford either heat or nourishment to the plants.

"When your hills are all prepared as above, plant in each, towards the center, eight or nine grains of good melon-seed, distant two inches from one another, and cover them about half an inch deep."

After-culture.—"When the plants are up, and in a state of forwardness, producing their rough leaves, they must be thinned to two or three in each hill: the extra number in some may serve to fill up deficiencies in others: draw earth from time to time round the hills, and as high about the plants as the seed-leaves; when fit stop them. This operation should be performed when the plants have two rough leaves, and when the second is about an inch broad, having the first runner-bud rising at its base; the sooner this is detached, the sooner the plants acquire strength, and put out fruitful runners.

"It is to be done in the following manner:—

"You will see arising in the center of the plant, at the bottom of the second rough leaf, the end of the first runner, like a small bud; which bud or runner, being the advancing top of the plant, is now to be taken off close, and may be done either with the point of a penknife or small scissors, or pinched off carefully with the finger and thumb; but, whichever way you take it off, be careful not to go so close as to wound the joint from whence it proceeds."

Armstrong says, "If the branches be vigorous and long, stretch them carefully over a level surface, and bury every fourth or fifth joint. This is best done by means of a wooden crotchet. The objects of pinching, or shortening the stem, are thus completely fulfilled, without any of the risk which attends that operation, and with advantages peculiar to this method; as, wherever the plant is buried, new roots are formed for the better nutrition of the stem and the fruit."

Setting.—"As the fruit-bearers come into blossom, you may assist the setting of the fruit, by impregnating some of the female blossoms with the male flowers, as directed for the cucumber. The melon, however, will also set naturally, and produce fertile seeds, if the time of fructification fall at a season when the glasses can be left almost constantly open."—*Aber.* Nicol says he has "proved, experimentally, that melons not impregnated will not swell off so fair and handsome as impregnated ones, and therefore considers it more necessary to attend to this operation in melons than in cucumbers."—*Loudon.*

Care of the fruit.—As the fruit increases to the size of a walnut, place a flat tile or slate under each, to protect it from the damp of the earth; the

slab, thus interposed, will also assist the fruit to ripen, by reflecting the rays of the sun.—*After*. Nicol advises placing the fruit on bits of slate or glass some time before it begins to ripen; but by no means slate or moss the whole surface of the bed.

Forcing melons.—The “*Honfleur* method” of forwarding the production of melons, as stated by Mr. Armstrong, has been given, p. 64. The same writer continues, “If we want melons at a period earlier than this method will give them, we must employ a higher degree and a longer continuance of artificial heat; in a word, we must resort to *hot-beds*, and in these the point most important and difficult of attainment at the same time is, to secure a certain degree of heat, and no more, throughout the whole process. To lessen the difficulty in this case, gardeners, who understand their trade, make choice of those varieties which have the thinnest skins and the least bulk, as experience proves that, other things being equal, they require less heat than those of thicker rinds and greater size, and are of course less subject to some of the accidents to which this species of culture is exposed. In choosing the seeds, those of the last year are only to be used, because they are of quicker vegetation than old ones, and, accordingly, best fulfill the intention of the hot-bed, which is, to give *early* fruit. Another practice conducive to the safety of the plants, is, to sow the seeds in small pots, and then to plunge them into a hot-bed. If the heat be deficient, they are, in this case, made no worse than they would have been, if sown directly in the bed; and if it be excessive, it is only necessary to raise the pots, without in the smallest degree disturbing the plant. These things being premised, it but remains to show what ought to be the subsequent management after the seed has been sown, and the pots placed under the frames. One of the most important points now to be observed, is sufficiently to ventilate the bed, as well before as after the plants show themselves. This should be done at mid-day and in sunshine, and as often as a necessity for it shall be indicated by an accumulation of steam under the glasses. At night, these (the glasses) should be carefully covered with matting. These two preliminaries (ventilation in the day, and covering at night) being carefully observed, your plants will soon show themselves in a vigorous and healthy state, and may be kept in that condition by a continuation of the same means, and by moderately moistening the earth when it shall have become too dry. The water employed should be of the same temperature of the air under the frames; and, to secure this, it is well to keep a supply of it in a pot, placed in a corner of the hot-bed. In about a month, the plants thus raised, will be fit for transferring to a second and larger hot-bed, constructed like the preceding, with the exception, that the mass of dung must now be greater, and that, after earthing, the bed should not be less than three and a half or four feet in depth. The plants, with the earth in which they grow, are now to be taken from the pots—an operation in which practice only will make us expert, and

which consists in placing the neck of the plant between the first and second finger of the left hand, reversing the pot, and gently striking its sides till the earth be disengaged. The discharged mass is then placed in a hole, previously prepared in the square, where it is intended the plant shall ripen and produce."

Cutting the fruit.—Nicol observes, that "Melons, if allowed to remain on the plant till they be of a deep yellow color, lose much of their flavor. They should, therefore, be cut as soon as they begin to change to a greenish-yellow, or, rather, as soon as they begin to smell ripe. They may lie in a frame for a day or two, if not immediately wanted, where they will acquire sufficient color. But if they are let remain many days in the frame, they will become as insipid as if they had been left too long on the plant."

Saving seed.—The ordinary mode is to request the seeds of particularly fine fruits of approved sorts to be returned from table. The best way, however, is to pick some best ripe fruit, take out the seed, clean it from the pulp, and let it be well dried and hardened; and then put it up in papers.—*Abercrombie.* Nicol says, wash it very clean, skimming off the light seeds, as those only which sink in water will grow. Great care must be taken that the sorts from which seeds are saved are genuine and distinct. When different sorts are planted in the same bed, this cannot be the case.

Second crop from the same plants.—"When the fruit of the first crop is off, a second crop may be obtained from the same stools, which often proves more productive than the first. If the first crop is taken before the middle of June, the second will come at a very good time. For this purpose, as soon as the fruit is cut, prune the plant. Shorten the vigorous, healthy runners, at a promising joint, to force out new laterals, cutting about two inches above the joint. At the same time, take off all decayed or sickly vines, and all dead leaves. Stir the surface of the mould, and renew it partially by three inches depth of fresh compost. Water the plants copiously, shutting down the glasses for the night. Shade in the middle of hot days; and give but little air, until the plant has made new radicles and shoots. Afterwards repeat the course of culture above described, from the stage when the first runners are sent out till fruit is cut."—*Loudon.*

Insects and diseases.—To prevent melon-plants from being infested with insects, or injured by diseases of any kind, no better method can be adopted than to keep the plants constantly in a healthy, vigorous, growing state; for this purpose, M'Phail observes, "They must be constantly attended to, giving them plenty of heat and water. In warm weather, in the spring and in summer, they should be watered occasionally all over their fruit and leaves, till the earth in which they grow be thoroughly moistened." In this country, melons and cucumbers are much infested by a small yellow bug, and perhaps the best method of securing them is covering the plants with a frame,

on which millinet is stretched and fastened, as directed under the article CUCUMBER.

Use.—The use of melons, as a palatable and wholesome article of diet, is too well known to need any remarks. Dr. Mease, of Philadelphia, observes, that “The juice of the sweeter kind of water-melon yields, on inspissation, a bright-colored syrup, which would answer every purpose required of any syrup. Mr. Henry Drinker, of Philadelphia, procured half a pound of this syrup, from fourteen pounds of melon juice, a part of which I tasted, and found very pleasant.” To make the most of unripe melons, Loudon’s Magazine directs to “boil them, and season them with spices and salt, or bake them like a pumpkin-pie.” The rind of the water-melon is also used for pickling, &c.

MINT.

Mentha Viridis.—*Mentha*, Fr.—*Münze*, Ger.

THIS is a genus of plants comprising twenty-four species. Those cultivated in gardens are peppermint, (*M. piperita*); spearmint, (*M. viridis*); pennyroyal-mint, (*M. pulegium*).

Culture.—All “the species are raised by the same methods, viz., by parting the roots, by offset young plants, and by cuttings of the stalks. Spearmint and peppermint like a moist soil; penny-royal, a strong loam. The plants set in spring or summer will come into use the same year. They may be placed about eight inches apart, on beds about four feet wide, allowing a path two feet broad. New beds should be made every three years.

Gathering the crop, and use.—“Mint should be cut for drying,” says Phillips, “just when it is in flower, and on a fine day; for if cut in damp weather, the leaves will turn black. It should be tied in small bunches, and dried in a shady place, out of the wind; but, to retain its natural virtues more effectually, it has been found better to place the mint in a screen, and to dry it quickly before a fire, so that it may be powdered and immediately put into glass bottles, and kept well stopped. Parsley, thyme, sage, and other herbs, retain their full fragrance when thus prepared, and are by this mode secured from dust, and always ready to the hand of the cook.

“A conserve made of mint is grateful, and the distilled waters, both simple and spirituous, are much esteemed. The juice of spearmint, drank in vinegar, often stops the hiccup. Lewis observes, what has before been observed by Pliny, that mint prevents the coagulation of milk, and hence it is recommended in milk diets.”

MUSHROOM.

Agaricus Campestris.—*Champignon cultivé*, Fr.—*Pilz* Ger.

THIS is a genus of plants comprising a great many species, of which, according to some authors, three hundred are natives of Great Britain. The kind cultivated in gardens is the *Agaricus campestris*, which is thus described by M'Mahon:—"The gills of this are loose, of a pinky red, changing to liver color, in contact, but not united with the stem; very thick set, some forked next the stem, some next the edge of the cap, some at both ends, and generally, in that case, excluding the intermediate smaller gills. Cap, white, changing to brown when old, and becoming surfy, fleshy, and regularly convex, but with age flat, and liquefying in decay; flesh white; diameter commonly from one inch to three, or sometimes four or more. Stem solid, one to three inches high, and about half an inch in diameter."

Loudon says, "The mushroom is a well known native vegetable, springing up in open pastures in August and September. It is most readily distinguished, when of middle size, by its fine pink or flesh-colored gills, and pleasant smell; in a more advanced stage, the gills become of a chocolate color, and it is then more apt to be confounded with other kinds of dubious quality; but that species which most nearly resembles it, is slimy to the touch, and destitute of the fine odor, having rather a disagreeable smell: further, the noxious kind grows in woods, or on the margins of woods, while the true mushroom springs up chiefly in open pastures, and should be gathered only in such places."

Mr. Armstrong gives the following directions for cultivating the garden mushroom:—"Prepare a bed, early in October, either in a corner of the hot-house, if you have one, or a dry and warm cellar. The width of the bed at bottom should not be less than four feet, and its length in proportion to the spawn provided. Its sides should rise perpendicularly one foot, and should afterwards decrease to the center, forming four sloping surfaces. We need hardly say that the material of the bed at this stage of the business must be horse-dung, well forked, and pressed together to prevent its settling unequally. It should then be covered with long straw, as well to exclude frost as to keep in the volatile parts of the mass, which would otherwise escape. After ten days, the temperature of the bed will be sufficiently moderated, when the straw is to be removed, and a covering of good mould to the depth of an inch, laid over the dung. On this the seed or spawn of the mushroom [which are threads or fibers of a white color, found in old pasture grounds, in masses of rotten horse-dung, sometimes under stable-floors, and frequently in the remains of old hot-beds] is to be placed in rows, six inches apart, occupying all the sloping parts of the bed, which is again to be covered with a

second inch of fresh mould and a coat of straw. If your bed has been well constructed, your mushrooms will be fit for use at the end of five or six weeks, and will continue to be productive for several months. Should you, however, in the course of the winter, find its productiveness diminished, take off nearly all the original covering, and replace it with eight or ten inches of fresh dung and a coat of clean straw. This, by creating a new heat, will revive the action of the spawn, and give a long succession of mushrooms."—*Mem. of N. Y. Board of Agr.* vol. ii, p. 125.

Use.—The garden mushroom is eaten fresh, either stewed or boiled; and preserved as a pickle, or in powder, or dried whole. The sauce commonly called *ketchup* (supposed, by Martyn, from the Japanese *kit-jap*) is or ought to be made from its juice with salt and spices. Wild mushrooms from old pastures are generally considered as more delicate in flavor, and more tender in flesh, than those raised in artificial beds. But the young or butter mushrooms, of the cultivated sort, are firmer, and better for pickling; and in using cultivated mushrooms, there is evidently much less risk of deleterious kinds being employed."—*Neill and Martyn.*

Antidote to poisonous sorts.—All fungi should be used with great caution, for even the *champignon* and edible garden-mushrooms possess deleterious qualities when grown in certain places. All the edible species should be thoroughly masticated, before taken into the stomach, as this greatly lessens the effects of poisons. When accidents of this sort happen, vomiting should be immediately excited, and then the vegetable acids should be given, either vinegar, lemon-juice, or that of apples; after which, give ether and anti-spasmodic remedies, to stop the excessive bilious vomiting. Infusions of gall-nut, oak-bark, and Peruvian bark are recommended as capable of neutralizing the poisonous principle of mushrooms. It is, however, the safest way not to eat any of the *good*, but *less common* sorts, until they have been soaked in vinegar. Spirits of wine and vinegar extract some part of their poison; and tannin matter decomposes the greatest part of it."—*Botanist's Companion*, vol. ii, p. 145.

MUSTARD.

Sinapis.—*Moutarde*, Fr.—*Senf*, Ger.

On this plant there are two species in cultivation, the *black* and the *white*; annuals, and natives of Great Britain.

The following are Loudon's directions for the culture of the white mustard, *S. alba*. For spring and summer consumption, sow once a week or fortnight, in dry, warm situations, in February and March; and, afterwards,

in any other compartment. "In summer, sow in shady borders, if it be hot, sunny weather; or, have the bed shaded. Generally, sow in shallow, flat drills, from three to six inches apart; scatter the seed thick and regular, and cover in thinly with the earth, about a quarter of an inch. To furnish gatherings in winter or early in spring, sow in frames or under hand-glasses; and when the weather is frosty, or very cold, in hot-beds and stoves."

Use.—"This species," according to Loudon, "is cultivated chiefly as a small salad, and is used like cresses, while in the seed: when these are newly expanded, they are mild and tender; but when the plants have advanced into the rough leaves, they eat rank and disagreeable." "In Spain, and throughout the south of Europe, the seed of the white species is preferred, for the fabrication of mustard, because giving a whiter and milder flour than the seed of the black."—*Armstrong.*

The seed of this plant is also celebrated for its medical virtues, being at once a tonic and an aperient; cleansing the stomach and bowels, and bracing the system at the same time.—See *N. E. Farmer*, vol. vi, p. 188.

BLACK MUSTARD.—*S. nigra*—is a larger plant than the white, with much darker leaves, and their divisions blunter.

Use.—"Black mustard is chiefly cultivated in fields for the mill, and for medicinal purposes. It is sometimes, however, sown in gardens, and the tender leaves used as greens, early in the spring. The seed leaves, in common with those of the cress, radish, rape, &c, are sometimes used as a salad ingredient; but the grand purpose for which the plant is cultivated, is for seeds, which, ground, produce the well known condiment. If the seeds, Dr. Cullen observes, be taken fresh from the plant, and ground, the powder has little pungency, but is very bitter; by steeping in vinegar, however, the essential oil is evolved, and the powder becomes extremely pungent. In moistening mustard-powder for the table, it may be remarked, that it makes the best appearance when rich milk is used; but the mixture, in this case, does not keep good for more than two days. The seeds of both the black and white mustard are often used, in an entire state, medicinally."

Culture for the mill.—"To raise seed for flour of mustard, and other officinal occasions, sow, either in March or April, in any open compartment; or make large sowings in fields, where designed for public supply. Sow moderately thick, either in drills, from six to twelve inches asunder, or broadcast, and rake or harrow in the seed. When the plants are two or three inches in the growth, hoe and thin them moderately where too thick, and clear them from weeds. They will soon run up in stalks, and, in July or August, return a crop of seed ripe for gathering."—*Abercrombie.*

ONION.

Allium cepa.—*Oignon*, Fr.—*Zwiel*, Ger.

THE common bulbous onion is a biennial plant, supposed to be a native of Asia. There are many varieties of this plant. Those mentioned in Mr. Russell's Catalogue are the following:—

White Portugal,	Top or tree onion,	Large red,
Yellow.	Silver-skinned,	Potato onion.
Genuine Madeira,	Strasburgh,	

The Strasburg is most generally adopted for principal crops. The silver skinned is reckoned among the best for pickling. “The top or tree onion has the remarkable property of producing the onions at the top of the stalk, and is valuable for domestic use, particularly for pickling, in which they are excellent, and superior in flavor to the common kinds. It is also used for any other purpose that onions usually are. It is perennial, and propagated by planting the bulbs in spring or autumn, either the roots, bulbs, or those on the top of the stalks.”—*Russell's Catalogue*.

Soil and culture.—The onion, “to attain a good size, requires rich, mellow ground, on a dry sub-soil. If the soil be poor or exhausted, recruit it with a compost of fresh loam and well-consumed dung, avoiding to use stable-dung in a rank, unreduced state. Turn in the manure to a moderate depth; and, in digging the ground, let it be broken fine. Grow pickles in poor, light ground, to keep them small. The market-gardeners at Hexham sow their onion-seed on the same ground for twenty or more years in succession, but annually manure the soil. After digging and leveling the ground, the manure, in a very rotten state, is spread upon it, the onion-seed sown upon the manure, and covered with earth from the alleys, and the crops are abundant, and excellent in quality.”—*Hort. Trans.* i, 121.

Deane's *New England Farmer* says, “A spot of ground should be chosen for them, which is moist and sandy; because they require much heat and a considerable degree of moisture. A low situation, where the sand has been washed down from a neighboring hill, is very proper for them. And if it be the wash of a sandy road, so much the better. The most suitable manures are old, rotten cow and horse dung mixed, ashes, but especially soot. A small quantity of ashes or sand, or both, should be spread over them after sowing, especially if the soil be not sandy. And it is not amiss to roll the ground after sowing; or harden the surface with the back of a shovel.”

Mr. Armstrong says, “It is propagated either by the seed or by the bulbs. In the first case, you sow in shallow drills, twelve or fourteen inches apart,

cover with mould, and, when the plants come up, thin them, so that they may stand three or four inches from each other. The sooner this is done in the spring, after the earth has acquired a temperature favorable to vegetation, the better will be your crop. It only remains to keep the earth loose and clean about the roots, and, if the vegetation be too vigorous, to break down the tops, so as to determine the juices to the bulbs. In the other case you but employ the small and half-grown onion of the preceding fall instead of seed."

Mr. Hubbard, of Concord, Mass., in an article published in the *N. E. Farmer*, vol. iii, p. 89, says, "The soil ought to be a *deep, black loam*, that will crumble fine when the plow passes through it; such as is easily raked smooth and pulverized. A heavy clammy soil, that adheres together when both wet and dry—a dry, clayey, or a sandy soil, will not answer. I know of no vegetable that is so difficult to please with a soil, as the onion: though they will grow well, yet they will not ripen, but hold green throughout the fall, and many of them will be what are generally known by the name of *scullions*, with the neck stiff and green; whereas those on suitable ground are ripe and dry by the first of September. Rotten stable-manure, made in the winter preceding the spring in which it is put on the land, is generally made use of, to be spread on the ground, and plowed in. I have a piece of land four rods square, on which onions have been raised, I suppose, these *eighty years*; and since I have improved it, I have yearly spread upon it five cart-loads of manure, such as are usually drawn by one pair of oxen; and have raised from *four to seven hundred* bunches of onions upon it, at three and a half pounds to the bunch, of which about sixteen make a bushel."

Mr. Hubbard puts the seed into the ground as soon as the frost is out, and it is sufficiently dry to be worked; frequently the latter part of March, but more frequently in the first days of April. He has always planted them in *hills*, which is the general practice in Concord. "My method of preparing the ground and planting the seed is, *first*, carry on the manure, and spread it as even as possible, when the ground is to be plowed deep; *then* let the plat be divided into beds, about three feet nine inches wide; to do which the easier way is to stretch a line across, lining one bed at a time; after this, let a man, with a shovel or a potato-hoe, make an alley through the whole piece, to separate the beds, about four inches deep, and sufficiently wide to admit a person to walk in it. Then let the lumps be beat fine, leveling the ground, and shaping the beds; which, after being raked smooth, must be divided into squares of eight or nine inches. This is best done by a line; or it is sufficiently exact to draw a heavy rope backwards and forwards. Now let the seeds, six or seven in a hill, more or less, be dropped into the corners of the squares, and covered with mould, about half an inch deep, pressed down with the hand."

A writer for the *N. E. Farmer*, vol. iii, p. 249, with the signature J. M., recommends "a moist, black soil," as best, but says, "a free, deep loam will answer very well." "The onion is not by nature inclined to root deep. You must give it a hard bottom to grow on, and keep your manure on the surface within reach of the roots; then they will grow large, flat, and handsome." Advises to sow the same piece for several successive years. "I have always sowed onions in drills, about eighteen inches apart, to give fair play to the hoe. Onions must be sowed as early as possible after the frost is out of the ground: in this climate, if the seed is not in the ground before the first of May, there is but little chance for a crop. It must be covered slightly and stamped well over with the hoe to close it well. I would recommend, as most essential, to sow the seed sparingly. Even the best gardeners are apt to put in too much seed. The consequence is, that the young plants come up so thick that they run up spiry and weak; and, when you come to thin them, you find great difficulty to pull up so many without injuring those that you leave; and the worst injury is what you do to the roots, which you tear and loosen. Therefore have seed of your own raising, or that you know is fresh, and sow sparingly."

In the *N. E. Farmer*, vol. iii, p. 265, are the observations of I. Tucker, Esq. of Salem, Mass., who says, "The land should be plowed about four inches in depth, and harrowed so as to make it very fine; the manure, which should always be a rich compost, should be plowed in and thoroughly mixed; the land should then be rolled with a heavy roller, to form a close bottom for the bulbs to form upon, and at the same time not so hard as to prevent the small roots of the plant from penetrating. The best onions and the largest crops are produced where the bulbs grow almost entirely on the top of the ground. After the ground has been rolled, and before the seeds are sown, the beds should be raked with a sharp iron rake, to prepare a finely pulverized drill for reception of the seed; and, after the seeds are sown, the drill should be pressed with a board and sufficient weight to bring the earth into close contact with the seed. Care should be taken in selecting seed; none should be sown but such as will be sure to vegetate; and it would be well if no more seed were to be sown than you would have plants to remain and grow in the drill. It would be superfluous to add that, if you would have a good crop of onions, you must not permit a crop of weeds to grow in the same bed; they will not grow well together."

Mr. Adams Knight of Newbury, Mass., received a premium of twenty dollars for having raised, in 1822, the greatest quantity of onions, being six hundred and fifty-one bushels on one acre. "The soil is a rich, gravelly loam, with a gravel bottom: in 1821 it was cultivated with onions and cabbages, and was manured with about five cords of barn manure, and produced a good crop: after the crop was off the ground, there were five cords of barn manure and two and a half of leached ashes plowed in in April,

1822, it was once plowed, and sowed in rows 14 inches apart, which took between three and four pounds of seed: in the course of the season, it was hoed between the rows, and weeded four times: in September, the onions were harvested, and there were six hundred and fifty-one bushels. The entire expense of cultivating this acre of onions, including twenty-one dollars and thirty-seven cents, the cost of the manure, was fifty-seven dollars and thirty-eight cents."

The work entitled *Gleanings, &c., in Husbandry*, directs to sow onions, if possible, in a dry time, and to tread them in, in light ground.

Loudon says, "When onions are to be drawn young, two ounces of seed will be requisite for a bed four feet by twenty-four; but when to remain for bulbing, one ounce will suffice for a bed five feet by twenty-four feet."

Deane says, "The ground should be dug or plowed in autumn, not very deep; and then made very fine in the spring, and all the gross roots and roots of weeds taken out; then laid in beds four feet wide. Four rows of holes are made in a bed, the rows ten inches apart, and the holes in the rows ten. About half a dozen seeds are put in a hole, or more if there be any danger of their not coming up well, and buried an inch under the surface. They will grow very well in bunches. Though the largest onions are those which grow singly some inches apart, those which are more crowded produce larger crops; and the middle-sized onions are better for eating than the largest." The last week in April is the proper time for sowing, according to this author.

The course of culture recommended by Abercrombie for the summer, and what he calls winter-laid-by crops is as follows:—"Allot an open compartment, and lay it out in beds, from three to five feet in width. Sow broadcast, equally over the rough surface, moderately thick, bed and bed separately, and rake in the seed lengthwise each bed, in a regular manner. When the plants are three or four inches high, in May and June, let them be timely cleared from weeds, and let the principal crop be thinned, either by hand, or with a small, two-inch hoe; thinning the plants to intervals of from three to five inches in the main crops designed for full bulbing, or some beds may remain moderately thick for drawing young, by successive thinnings, to the above distance. For the Spanish, from seed obtained immediately from Spain, the final distance should be six or seven inches. Keep the whole very clear from weeds, in their young and advancing state. The plants will begin bulbing a little in June, more fully in July, and be fully grown in August to large bulbs. In July or August, when the leaves begin to dry at the points and turn yellow, lay the stems down close to the ground, bending them about two inches up the neck, which promotes the ripening of the bulb, particularly in wet or backward seasons. The crop of full bulbers will be ready to take up towards the middle of August. When the necks shrink and the leaves decay, pull them wholly up in due time. Spread

them on a compartment of dry ground, in the full sun, to dry and harden completely, turning them every two or three days, and in a week or fortnight they will be ready to house. Clear off the grossest part of the leaves, stalks and fibers; then deposit the bulbs in some close, dry apartment, in which sometimes turn them over, and pick out any that decay; and they will thus keep sound and good all winter and spring, till May following."

Culture of a winter-standing crop to be drawn for use the succeeding spring.
—“Allot a soil rather more light and sandy for the summer crop, on a sub-soil at least equally dry. The compartment, especially for any of the biennial kinds, should lie warm and sheltered. The beds may be three or four feet wide, running parallel to the best aspect. The medium time for the principal sowing falls about the 7th of August, and, for a secondary crop, near the 25th. Sow the bulbing sorts and the Welsh perennial separately; distribute the seed pre'ty thickly. If the soil be dry and light, tread down the seed evenly along the surface of each bed, and then rake it in neatly. When the plants are come up one, two, or three inches, carefully hand-weed in time, before any rising weeds spread; not thinning the plants, because they should remain thick, for their chance in winter, and to be, by degrees, drawn thinly, for use in salads and otherwise; but reserve a principal supply to remain till spring. Observe, the Welsh onion, in particular, commonly dies down to the ground about mid-winter; but the root part, remaining wholly sound, sends up a new, vigorous stem in February and March. At the opening of spring, let the whole of both sorts be well cleared from weeds; they will continue fit to draw young during all the spring months, till May; then let some of the bulbous kinds be thinned, to remain for early bulbing in June and July; but, as they will soon after shoot up in stalk, they are chiefly for present use, not being eligible as keeping-onions.”

To preserve onions through the winter, they may be tied together, forming what are called ropes or bunches of onions, and kept in a dry and cool cellar. Moisture rots, and warmth causes them to vegetate. A considerable degree of cold will not injure them, for they resist frost in consequence of a spirituous substance of which they are in part composed. Searing their fibrous roots with a hot iron will prevent them from sprouting.

To obtain seed from onions, they should be planted early in beds, about nine inches apart. The largest and soundest are best. They should be kept free from weeds; and, when the heads of the flowers begin to appear, each plant must have a stake about four feet long, and its stems be loosely tied to the stake by a soft string; or the stems may be supported by stakes, six or eight feet apart, and pack-thread or rope-yarn fastened from one to the other, a little below the heads. When ripe, the heads are to be cut (or the seeds will shed) and spread in the sun, on coarse cloths, to dry—being, however, taken under shelter at night and in rain. When the seed is beaten out, it is to be dried one day in the sun, and then put in bags to preserve for sowing.

Dr. Deane and Mr. Nicholson, author of the *Farmer's Assistant*, condemn the practice of beating or breaking down the tops of onions in order to increase the size of the root. Mr Nicholson observed, "The practice is undoubtedly injurious, as we have seen confirmed by experiment."

"*Culture of the potato onion*.—This variety, erroneously supposed to have been brought from Egypt by the British army about 1805, was grown in Driver's nursery, in 1796, and has been known in Devonshire for upwards of twenty years. It is thus cultivated at Arundel Castle by Maher:—Having thoroughly prepared the ground, and formed it into beds four feet wide, I draw lines the whole length, three to each bed, and, with the end of the rake-handle, make a mark (not a drill) on the surface; on this mark I place the onions, ten inches apart; I then cover them with leaf-mould, rotten dung, or any other light compost, just so that the crowns appear exposed. Nothing more is necessary to be done until they shoot up their tops; then, on a dry day, they are earthed up, like potatoes, and kept free from weeds, until they are taken up. In the west of England, where this kind of onion is much cultivated, I understand that it is the practice to plant on the shortest day, and take up on the longest. The smallest onions used for planting swell, and become very fine and large, as well as yield off-sets; the middle-sized and larger bulbs produce greater clusters."—*Hort. Trans.* vol. iii, p. 305.

"Dymond states (*Hort. Trans.* vol. iii, p. 306), that in Devonshire it is planted in rows, twelve inches apart, and six inches' distance in the row; that the plants are earthed up as they grow, and that the smaller bulbs yield a greater increase than the larger. A similar practice is adopted by some Scotch cultivators.—*Caled. Hort. Mem.* vol. i, p. 344, and vol. iv, p. 216.

"Wedgewood does not earth up, and finds his bulbs acquire a much larger size than when that practice is adopted.—*Hort. Trans.* vol. iii, p. 403. The fact is, as we have observed in generalizing on the subject of earthing up, surface-bulbs, as the onion, turnip, &c, are always prevented from attaining their full size by that operation, whatever they may gain in other respects."

—*Loudon*.

Use.—"The properties of onions in no respect differ from those of garlic excepting that the former are less pungent, and are, therefore, more generally used for culinary purposes. Many persons, however, dislike them on account of the strong and disagreeable smell which they communicate to the breath. But this inconvenience is obviated by eating a few raw leaves of parsley, immediately after partaking of onions, the scent of which is thus nearly removed, and they are, at the same time, rendered more easy of digestion. Vinegar also answers the same purpose."—*Dom. Encyc.*

PARSLEY.

Apium Petroselinum.—*Persil*, Fr.—*Petersilie*, Ger.

THE parsley is a hardy biennial, a native of Sardinia. The varieties, according to Loudon, are—

The common plain-leaved (*eridom cultivated*), | The broad-leaved, or large-rooted Ham
The curled or thick-leaved (*most esteemed*), | burgh (*cultivated for its carrot-shaped root*).

Mr. Russell's Catalogue mentions the following kinds:

Curled or double— <i>Apium petroselinum cris-</i>	Hamburg, or large-rooted, do. var. <i>uber-</i>
<i>pissimum</i> ;	<i>osum</i> ;
Dwarf curled (<i>very much curled</i>), No. do.;	Siberian (<i>very hardy, single-leaved, and of fine</i>
	<i>flavor</i>).

and adds, “sown from April to August. Parsley seldom vegetates under five weeks after sowing. It is recommended to soak the seed twelve hours in water mixed with sulphur. This process, with attentive watering, will cause the seed to vegetate in less than a fortnight.” The seed should be fresh. Loudon says, two years old seed will not grow.

Culture of the pot-herb kinds.—“One sowing in spring will mostly furnish young leaves all the year; though, to answer a constant demand, many persons make successive sowings from February [in Great Britain] to May. Some also sow early in autumn for young parsley in winter and spring; but such a supply is better provided by cutting down established plants. Sow in a single drill along the edge of any compartment, or occasionally in rows nine or twelve inches asunder. Draw small drills, something less than an inch deep; in which drop the seed moderately thick, and cover a little above half an inch. The plants will come up in three or four weeks, and, when two or three inches high, may be gathered as wanted, all the summer, winter, and following spring till May, when they will go to seed. Have always a young crop sowed timely in the spring to succeed the declining old plants. In gathering pot-herb parsley, cut close and regular. In summer, when the plants grow rank, yielding more leaves than can be used, cut them close to the bottom, and they will shoot up stocky, and in a regular, close growth. Observe also to do the same in autumn, about the end of September, that the plants may form heads of fresh young leaves before winter. On the approach of frosty weather, protect them with haulm,” straw, or any thing else, which will serve for a defense against cold.

Culture of Hamburg Parsley.—“To obtain large roots, allot a compartment where the soil is deep, and has been well digged. Any common mould

will suit, if dry and not too rich. Sow in February, [soon as the frost is well out of the ground,] March, or early in April, in one or more beds, either in drills nine inches asunder, or broad-cast, and rake in. The plants should be thinned to nine inches distance, to give room for proper growth in the roots; for use in August, September, October, and thence till the following spring. On the approach of frost, take up some roots, and preserve them in sand. A sowing may be made the third week in June, where young roots are wanted in winter."

The Siberian, or single-leaved parsley, is cultivated in fields. It may be sown very early with oats or other spring grain, mixed with grass seed.—See *Encyc. of Agr.* parag. 5081.

Uses.—This herb is much used and highly valued for culinary purposes as a pot-herb, for garnishes, &c. The Hamburg parsley is esteemed for its large, carrot-like root, drawn in autumn and winter for the table. In field cultivation it is said to be a preservative from rot in sheep, and efficacious in curing greasy and surfeited horses, &c.—See *New England Farmer*, vol. vi, page 152.

PARSNEP.

Pastinaca sativa.—*Panais*, Fr.—*Pastinake*, Ger.

LOUDON observes, that "There is only one variety of the Parsnep in general cultivation in Great Britain, but the French possess three—the *Coquaine*, the *Lisbonaise*, and the *Siam*. The *Coquaine*, Dr. Macullocb informs us, (*Caled. Hort. Mem.* vol. i, p. 408,) is much cultivated in Guernsey and Jersey. The roots run sometimes four feet deep, and are rarely so small in circumference as six inches, having been known to reach sixteen. The leaves of this variety grow to a considerable height, and proceed from the whole crown of the root. The *Lisbonaise* does not extend to so great a depth as the *Coquaine*; but the root is equally good in quality, and what is lost in length is gained in thickness. The leaves are small and short, and only proceed from the center of the crown. The *Siam* has a root of a yellowish color, not very large, but tender, and more rich in taste than the other varieties."

Soil.—The soil should be light, deep, and free from stones. It should be dug or trenched before sowing, one good spade deep, at least, (some writers say two spades deep,) being careful to pulverize the soil thoroughly, that the roots may have no obstruction to prevent their running down long and straight. If the soil be proper for them, it is said they will not require much manure; and what is used should be perfectly decomposed, or, if recent, be

deposited at the bottom of the trench. They do not impoverish the soil, but, like onions, may be raised many years in the same spot.

Seed estimate, and sowing.—Sow as early as the ground is thawed, if not too wet. Deane observed, that “some sow them in the fall; but that is not a good practice, because the ground will grow too close and stiff for want of stirring in the spring; which cannot well be performed in gardens, without danger of injuring the roots. And weeds will be more apt to abound among them if they be sown in autumn.” Loudon says, “For a bed five feet by twenty, the plants to remain thinned to eight inches’ distance, half an ounce of seed is the usual proportion.” Deane recommends sowing them in rows across beds, fifteen inches apart, and to allow six inches from plant to plant at the last thinning, which may be early, as they are not often hurt by insects.

Culture.—When the plants are about one, two, or three inches high, in May or June, let them be thinned and cleared from weeds either by hand or small hoeing. Keep them afterwards clear from weeds, till the leaves cover the ground, after which no further culture will be required. Parsneps will continue growing till the frosts are very severe, and are not good for use till they have become ripe, late in autumn. Any thing which is to be used early in the season may be sown with parsneps, such as carrots to draw young, radishes, lettuces, &c.

Preserving during winter.—The parsnep is not so liable as the carrot to be hurt by frost if left in the ground, and some let them remain where they grew through winter. But the best way is to dig them some time in November. They should not be wounded nor bruised in digging; neither should the tops be cut off very close to the roots, nor any of the lateral roots cut off. In either case the roots will rot or become bitter. “Many lose their parsneps, or make them sprout, by putting them in a warm cellar. It is better to keep them in some out-house, or in a cellar that freezes; for no degree of frost ever hurts them. But to prevent their drying too much, it is best to cover them with dry sods, or else bury them in sand that has no moisture in it. Beach sand is improper, because the salt in it will make them vegetate.”—Deane.

Field culture of parsneps.—In giving an account of the agriculture of the island of Jersey, an English writer says, “Parsneps are grown by every farmer, and either by the spade culture alone, by the plow and spade, or by the small and great plow; any soil in good heart and tilth suits them, but peculiarly a deep loam; and in the same spot, generally, are raised beans, peas, cabbage, and, occasionally, potatoes.

“When the plowing or digging is completed, the field is once harrowed; straight lines are then drawn across, by means of a gardener’s rake, usually from north to south; women then proceed with dibbles, and set the beans in rows, at a distance of four inches, or five inches, from bean to bean, in four

three, and sometimes two ranks of beans, leaving intervals of between five and six feet between each of the sown rows. In the use of the dibble, and in dropping the beans, the women have acquired considerable dexterity. In many instances they are followed by children, who drop into each hole made by the dibble, after the bean, three or four peas; the parsnip seed is then sown at the rate of one third to one half of a bushel to the acre."—*Quayle's General View of the Norman Islands.*

Use.—The writer above quoted asserts, that, in the island of Jersey, parsnip "is eaten with meat, with milk, and with butter; but not, as is the common mode of using it as human food in England, with salt fish, or, as in Ireland, together with potatoes.

"The next most valuable application of this root is hog-feeding. At first it is given to the animal in a raw state, afterwards boiled or steamed, and, finally, for a week or fortnight, with bean and oat-meal. A hog treated in this way is sufficiently fatted for killing in about six weeks. Its flesh is held superior to that arising from any other food, and does not waste in boiling.

"Bullocks are also fatted with parsnips in about three months; their flesh is here considered of superior flavor to any other beef, and commands, on that account, an additional half-penny in the pound on the price. To milch cows they are also usually given; on this diet, the cream assumes a yellow color. By the accounts here given, it appears, in proportion to the milk, to be more abundant, than when the animal is kept on any other food whatever. When the cow receives at the rate of thirty-five pounds per day, with hay, seven quarts, ale measure, of the milk, produce seventeen ounces of butter. It is generally allowed that the flavor of the butter is superior to any other produced in winter.

"Geese are sometimes shut up with the hogs to fatten on parsnips, which they will eat raw. The root is also given boiled; and for a week before killing they are fed with oats or barley only. Horses eat this root greedily; but in this island it is never given them, as it is alleged that, fed on this food, their eyes are injured. About Morlais, horses are not only ordinarily fed on parsnips, but they are considered as the best of all food, superior even to oats."

To save seed.—Transplant some of the best roots as early as the frost will permit in the spring, two feet asunder inserted over the crown. They will produce seed plentifully in autumn.

PEAS.

Pisum sativum—*Pois*, Fr.—*Erbse*, Ger.

THE pea is a hardy annual, a native of the south of Europe, cultivated in Great Britain from time immemorial, and in this country from its first settlement.

Varieties—These are numerous: those mentioned in Mr. Russell's Catalogue are—

Early Washington, or true May Pea, (extra early and fine—grows to the height of two and a half feet ;)	Dwarf marrowfat, (three and a half feet ;)
Early double-blowned, frame, (early and fine—three feet ;)	Dwarf sugar, (pods eaten—three feet ;)
Early frame, (two and a half feet ;)	Matchless, or true tall marrowfat, (one foot ;)
Early golden Hotspur (three feet ;)	Knight's tall marrows ;
Early Charlton, (three feet ;)	Tall, crooked podded sugar, (pods eaten—six feet ;)
Dwarf blue imperial, (two feet—a superior variety ;)	Ladies' finger marrows, (a prodigious bearer, and delicate eating pea ;)
Dwarf blue Prussian, (two and a half feet ;)	New nonpareil pea, (a new and productive sort from Scotland ;)
Dwarf Spanish, or fan, (one foot ;)	Knight's dwarf marrows.

“The Charltons are not only very early, but great bearers, and excellent peas for the table; and are therefore equally well fitted for the early and forward succession crops, and inferior to few even for the main summer crops. The frame pea may indeed be raised without the assistance of heat for a forward crop, and, if a genuine sort, will fruit a few days sooner than the Charlton; but it grows low, and bears scantily. The Hotspur is hardy and prolific, and makes returns nearly as quick as the Charlton, and about a fortnight before the marrowfat. The sorts already specified, therefore, embrace the best for sowings made from the end of October till the middle of January, and for late crops, raised between the middle of June and the beginning of August. The Charltons and Hotspur may be sown in May for late fall crops; in June for a smaller supply; and in July along with the frames for the last returns.”—*Loudon*.

Times of sowing.—“The dwarfs are generally employed in hot-bed culture, which, however, succeeds badly, and is neither worth preserving nor describing, and the less so, as early crops may be more certainly had by sowing in the fall, in sheltered situations, and covering during the winter with a layer of leaves, and another of long stable-litter loosely applied to keep the leaves in their places. After the earth takes a temperature favorable to vegetation, your pea sowings should be made once a fortnight, to keep up a regular and successive supply.”—*Armstrong*.

Quantity of seed.—“ Of the small, early kinds, one pint will sow a row of twenty yards; for the larger sorts, for main crops, the same measure will sow a row of thirty-three yards.”

Process in sowing.—“ For early sorts, make the drills one inch and a half deep; and let parallel drills be two feet and a half, three or four feet asunder. Peas that are to grow without sticks require the least room. For summer crops and large sorts, make the drills two inches deep, and four, five or six feet asunder. As to the distances along the drill, distribute the peas according to their size, and the season; the frame, three in the space of an inch; the Charltons, Hotspur, and dwarf marrowfat, two in an inch; the Prussian blue, and middle-sized sorts, three in two inches; the large marrowfat and Knight’s, a full inch apart; the moratto, rounçivals, and most larger sorts, an inch and a half apart, and the Patagonian, two inches.”

Soil and situation.—“ The soil should be moderately rich, and the deeper and stronger for the lofty growers. Peas are not assisted, but hurt, by unreduced dung recently turned in. A fresh, sandy loam, or road-stuff, and a little decomposed vegetable matter, is the best manure. The soil for the early crops should be very dry, and rendered so, where the ground is moist, by mixing sand with the earth of the drills.”—*Loudon.*

Armstrong says. “ A loose and warm soil is most favorable to this vegetable, which, by the way, is neither improved in quality nor quantity by stable manure. The soil of Clichy, and of Point de Jour des Colombe, &c., in the neighborhood of Paris, is a pure sand, principally devoted to pea crops, and yielding these most abundantly without the application of dung, new or old.”

Subsequent culture.—“ As the plants rise from half an inch high to two or three inches, begin to draw earth to the stems, doing this when the ground is in a dry state, and earthing gradually higher as the stems ascend. At the same time, with the hoe, loosen the ground between the young plants, and ent down rising weeds. Early crops should be protected during hard frosts by dry straw, or other light litter, laid upon sticks or brush wood; but remove the covering as soon as the weather turns mild. If, in April, May, and the course of the summer, dry weather occurs, watering will be necessary, especially to plants in blossom, and swelling the fruit; and this trouble will be repaid in the produce. Rows partly cut off may be made up by transplanting. In dry weather, water, and in hot weather, shade, until the plants strike. All peas fruit better for sticking, and continue longer productive, especially the larger sorts. Stick the plants, when from six to twelve inches high, as soon as they begin to vine. Provide branchy sticks of such a height as the sort will require; for the frame and Leadman’s dwarf, three feet high; for the Charlton and middle-sized, four or five feet; for the marrowfat and larger kinds, six or eight feet; for the rounçival, and for Knight’s marrow-pea, nine or ten feet. Place a row of sticks to each line of peas, on

the most sunny side, east or south, that the attraction of the sun may incline the plants towards the sticks. Place about half the number on the opposite side, and let both rows stand rather wider at top than at the ground. Some gardeners stop the leading shoot of the most early crop, when in blossom; a device which accelerates the setting and maturity of the fruit.

To forward an early crop.—“Sow or plant in lines from east to west, and stick a row of spruce-fir [or other evergreen] branches along the north side of every row, and sloping so as to bend over the plants, at one foot or eighteen inches from the ground. As the plants advance in height, vary the position of the branches, so as they may always protect them from perpendicular cold or rain, and yet leave them open to the full influence of the spring sun. Some cover during nights, and in severe weather with two boards, nailed together lengthwise, at right-angles, which forms a very secure and easily-managed covering, but excludes light. A better plan would be to glaze one of the sides, to be kept to the south, and to manage such row-glasses, as they might be called, when over peas, beans, spinage, &c., as hand-glasses are managed, when over cauliflower; that is, to take them off in fine weather, or raise them constantly or occasionally by brick-bats, or other props, as the weather and the state of the crop might require.”—*Loudon.*

Management of a late crop.—The best variety for this purpose is Knight's marrow-pea, which may be sown at intervals of ten days, from the beginning to the end of June. “The ground is dug over in the usual way, and the spaces to be occupied by the future rows of peas are well soaked with water. The mould upon each side is then collected so as to form ridges seven or eight inches above the previous level of the ground, and these ridges are well watered. These seeds are now sown in single rows, along the tops of the ridges. The plants grow vigorously, owing to the depth of soil and abundant moisture. If dry weather at any time set in, water is applied profusely once a week. In this way, the plants continue green and vigorous, resisting mildew, and yielding fruit till subdued by frost.”—*Hort. Trans.* vol. ii.

To save seed.—“Like other vegetables, the pea is susceptible of considerable improvement, and by the simple means of marking the finest plants of each variety, and keeping them for seed. Wilson's frame, and the Knight pea, have been formed in this way, and afford sufficient proof of the wonders produced by a very small degree of observation and care.”—*Armstrong.*

Field-culture of the pea.—The most common mode of sowing peas is broadcast; but the advantages of the row-culture, in a crop so early committed to the ground, must be obvious. Loudon says: “In Kent, where immense quantities of peas are raised, both for gathering green, and for selling ripe to seeds-men, they are generally sown in rows from eighteen inches to three feet asunder, according to the kind, and well cultivated between. Peas, laid a foot below the surface, will vegetate; but the most approved depth is

six inches in light soil, and four inches in clay soil, for which reason they ought to be sown under furrow, when the plowing is delayed till spring. Of all grain, beans excepted, they are in the least danger of being buried too deep."

Deane observed, that for "Field-peas, land that is newly plowed out of sward is generally accounted best; and land which is high and dry, and has not been much-dunged. A light, loamy soil is most suitable for them; and if it abound with slate stones, it is the better. But they will do in any dry soil. The manures that suit peas best, are marl and lime. Our farmers do not commonly allow a sufficient quantity of seed for peas, in broad-cast sowing. When peas are sowed thin, the plants will lie on the ground, and perhaps rot: when they are thick, the plants will hold each other up with their tendrils, forming a continued web, and will have more benefit of the air.

Insects and diseases.—The *Mass. Agricultural Repository*, for June, 1822, contains some remarks of the Hon. T. Pickering, relative to a bug or fly (*bruchus pisi*), which preys on the pea, in which he observes, that an effectual remedy for this evil is *late sowing*; but the hot sun of June will so pinch the vines of the late sown peas, that the crop will be small, unless the land be moist as well as rich. He then details some experiments, by which he concludes that this insect is limited to a certain period for depositing its eggs; and if the tender pods are not found till that period has passed, the peas will be free from bugs. Col. Worthington, of Rensselaer county, N. Y., "sowed his peas on the 10th of June, six years in succession, and a bug has never been seen in his peas. Whereas his neighbors, who have not adopted this practice, have scarcely a pea without a bug in it. He supposes the season for depositing the egg of the pea-bug is passed before the peas are in flower."—*Mem. of N. Y. Board of Agriculture*, vol. ii, p. 23. "The only insect that commonly injures our peas is a small brown bug or fly, the egg [or larva] of which is deposited in them when they are young and the pods easily perforated. The insect does not come out of its nest till he is furnished with short wings. They diminish the peas in which they lodge nearly one half, and their leavings are fit only for the food of swine. The bugs, however, will be all gone out if you keep them till the following autumn. But they who eat buggy peas the winter after they are raised, must run the venture of eating the insects."—*Deane's N. E. Farmer*. The same writer recommends, when seed-peas are known or suspected to contain insects, to scald them a quarter of a minute in boiling water, spread them about, and sow them without delay. If any of the bugs should be in the peas, this scalding will destroy them; and the peas, instead of being hurt, will come up the sooner, and grow the faster.

Mildew is another evil attending peas, especially such as are sown late in the season. This disorder is supposed by Knight to be caused by "a wan-

“of a sufficient supply of moisture from the soil, with *excess* of humidity in the air, particularly if the plants be exposed to a temperature below that to which they have been accustomed.” The remedy which he recommends is, to “give water rather profusely once a week, or nine days, even if the weather proves showery.”—See *N. E. Farmer*, vol. i, p. 414.

Use.—The use of peas for soups, and other culinary purposes, is well known. They are likewise very serviceable in fattening hogs, for which purpose they should be harvested dry, and ground into meal. If the straw be forward in autumn, and has been harvested without injury, it will be little inferior to ordinary hay for feeding cattle.

“In boiling split peas, some samples, without reference to variety, fall or moulder down freely into pulp, while others continue to maintain their form. The former are called *boilers*. This property of boiling depends on the soil: stiff land, or sandy land that has been limed or marled, uniformly produces peas that will not melt in boiling, no matter what the variety may be.”—*Loudon*.

“When peas are sown before winter, or early in spring, they are very apt to be eaten by mice. To prevent this, soak the peas, for a day or two in train oil, before you sow them, which will encourage their vegetation, and render them so obnoxious to mice that they will not eat them.”—*Domestic Encyclopedia*.

PEPPER, RED.

Capsicum.—*Piment* Fr.—*Spanischer Pfeffir*, Ger.

This plant requires a warm, rich soil, and a favorable exposure. The seeds may be placed in rows, three feet apart, or in hills, at that distance from each other. In dry weather they will need watering, and should be kept clear of weeds by frequent hoeing. The seeds are best preserved by running a string through the pods, and hanging them in a dry place.

Use.—“Pepper is an excellent spice, which should always be coarsely ground, and eaten only with fat, smoked, or tough animal food; with cabbages, cucumbers, and other flatulent and cold vegetables; and likewise with fish, and all substances that are difficult to be digested. On the continent of Europe, this spice is highly esteemed for its efficacy in relieving flatulency, weak, or impaired digestion, and the giddiness which generally accompanies the complaint last mentioned. For this purpose, from six to ten grains are directed to be swallowed every morning, previously to taking food; such practices, however, ought to be adopted only in cases where the stomach is in a high degree vitiated, or the patient has been habituated to the free use of spices and spirituous liquors.”—*Dom. Ency.*

POTATO.

Solanum Tuberosum.—*Pomme de Terre*, Fr.—*Kartoffel*, Ger.

SIR JOSEPH BANKS (*Hort. Trans.* i, 8), considers that the potato was first brought to Spain from the mountainous parts of South America, in the neighborhood of Quito. To England, however, this root found its way by a different route, being brought from Virginia by the colonists sent out by Sir Walter Raleigh, in 1586.

Varieties.—These are very numerous, not only from the facility of procuring new sorts by raising them from seed, but because any variety cultivated for a few years, in the same soil and situation, as in the same garden or farm, acquires a peculiarity of character and habit, which distinguishes it from the same variety in a different soil and situation. Dr. Hunter, in his *Geographical Essays*, has supposed the duration of a variety is limited to fourteen years: and Knight concurs with him in opinion. Potatoes, which are excellent in Ireland, Nova Scotia, and other high northern latitudes, do not answer a good purpose in New England. The potato taken from the south prospers better, such as the River Plate, or long red potato, which has succeeded well in Massachusetts. Loudon asserts, that the best mode to order potatoes for seed is, to give a general description of the size, color, form, and quality wanted, and whether for an early or late crop, without being guided by the names attached to any varieties.

Propagation.—The potato may be propagated from seed, cuttings, or layers of the green shoots, sprouts from the eyes of the tubers [roots], or portions of the tubers containing a bud or eye, or by planting the tubers whole. The object of the first method is to procure a new or improved variety; of the second, little more than curiosity, or to multiply, as quickly as possible, a rare sort; and of the third, to save the tubers for food. The methods, by portions of the tubers [the roots cut in pieces], or whole potatoes, are the best, and almost universally practiced, for the general purposes both of field and garden culture.

By seed.—“Take the apples, in the beginning of October [or whenever they are ripe], before the frost has hurt them; hang them up by the foot stalks, in a dry closet, where they will not freeze; let them hang till March, or April; then mash the apples, wash the seeds from the pulp, and dry them in a sunny window. Sow the seeds in a bed about the first of May. When the plants are four or five inches high, transplant them into ground well prepared, one or two plants in a hill.”—*Deane*. Seeds from the same ball will produce a great variety of kinds, some of which may be of little value; and in order to make the most of such experiments, it will be well to proceed according to the following directions, extracted from some remarks by Col.

Pickering, contained in a pamphlet published by the Essex Agricultural Society, Mass.; this society having awarded premiums for the best potatoes raised from the seed.

1. "Seeing the seeds in the same ball will produce various sorts of potatoes, it will be indispensably necessary, that each young plant grow at the distance of eight or ten inches apart.

2. "In autumn, or as soon as the vines or stems of the plants die, and the young potatoes are dug up, those of each plant are to be saved by themselves, and it will be easy to put each sort in a separate paper bag. Those potatoes will be very small, perhaps from the size of a pigeon's down to a sparrow's egg.

3. "In the ensuing spring, the potatoes of each sort, that is, the potatoes of each bag, must be planted by themselves, and, if not in distinct rows, then stakes, driven into the ground, should mark the divisions of the several sorts in the same rows, leaving a space of about two feet between one sort and another, to guard against any mixture.

4. "In the time for harvesting them in the second year, the potatoes [if grown in a good soil] will be large enough to be boiled, to ascertain their quality. Each sort must be tried by itself. Such as are watery, and are ill-flavored, may be at once thrown aside, for the use of live stock. Every other sort, so valuable as to be thought worth cultivating, must be kept unmixed, by putting each kind in a separate bag or cask."—*N. E. Farmer*, vol. vi, p. 286.

The modes of propagating by layers, cuttings of the vines, suckers, sprouts, &c., are rather curious than useful, and are therefore here omitted, but may be seen in detail in the *Encyc. of Gard.* p. 620.

By portions of the tubers [or cuttings of the roots].—"In making the sets or sections, reject the extreme or watery end of the tuber, as apt to run too much to haulm [vine], and having the eyes small, and in a cluster; reject also the root, or dry end, as more likely to be tardy in growth, and produce the curl. Then divide the middle of the potato, so as to have not more than one good eye in each set. When the potato-scoop [an instrument for digging out the eyes of potatoes] is used, take care to apply it so as the eye or bud may be in the center of each set, which this instrument produces, of a semi-globular form. The larger the portion of tuber left to each eye, so much the greater will be the progress of the young plants."—*Loudon*.

By some experiments which were made by J. Whitlaw, Esq., and given in detail in the *N. E. Farmer*, vol. i, p. 53, and vol. iv, p. 314, these two important facts were made apparent: 1st. Large potatoes are much better for seed than small ones. 2d. It is best to cut off the but and top-ends from each potato, and cut the middle pieces into quarters, before planting. Knight, the famous English horticulturist, has found, that, for a late crop, small sets [seed potatoes] may be used; because the plants of the late varieties always

acquire considerable age before they begin to generate tubers; but for an early crop, he recommends the largest tubers; and he has found, that these not only afford very strong plants, but also such as readily recover when injured by frost; for, being fed by a copious reservoir beneath the soil, a reproduction of vigorous stems and foliage soon takes place, when those first produced are destroyed by frost or other cause. He adds, "When the planter is anxious to obtain a crop within the least possible time, he will find the position, in which the tubers are placed to vegetate, by no means a point of indifference; for these, being shoots or branches which have grown thick instead of elongating, retain the disposition of branches to propel the sap to their leading buds, or points most distant from the stems of the plants of which they once formed parts. If the tubers be placed with their leading buds upwards, a few very strong and very early shoots will spring from them; but if their position be reversed, many weaker and later shoots will be produced; and not only the earliness, but the quality of the produce, in size, will be much affected."—*Hort. Trans.* iv, p. 448.

M'Mahon advises to cut seed potatoes "a week before planting, in order that the wounds should have time to form a dry crust; for, if planted immediately after being cut, they imbibe too much moisture, many of them rot, and the rest are greatly weakened thereby." Some advise to wet seed potatoes, and roll them in pulverized plaster of Paris, immediately before planting.

From an experiment made by a person in the employ of the Hon. Josiah Quincy, the particulars of which are given in *Mass. Agr. Repos.* vol. v, p. 64, it appears that the product of certain rows, planted with *whole* potatoes, exceeded an equal extent of adjoining rows *more than one third*. A writer for the *N. E. Farmer*, vol. i, p. 330, gives an experiment, which tends to the conclusion that potatoes planted whole produce more than those which are cut. The experiments of most cultivators, however, are in favor of cutting. Dr. Cooper, in the last Philadelphia edition of *Willich's Domestic Encyclopedia*, says, "The best mode [with regard to seed potatoes] appears to be this:—Choose your potatoes for planting of a moderate size, rather large than small, for there is no good reason to be assigned for breeding from diminutive parents; cut your potatoes into sets, two eyes to a set; throw away, without hesitation, into the hog-trough all the inferior and diminutive eyes, choosing your sets from the middle of the potato; do not cut the potato down the middle." Loudon observes, "In preparing the sets of potatoes, some cultivators recommend large sets, others small potatoes entire. Others, on the ground of experience, are equally strenuous in support of small cuttings, sprouts, shoots, or even only the eyes or buds. With all these different sorts of sets, good crops are stated to have been raised, though tolerable-sized cuttings of pretty large potatoes, with two or three good eyes or buds in each, are probably to be preferred. A very slight exercise of common sense

might have saved the advocates of shoots, scooped-out eyes, &c., their experiments and arguments, it being evident, as Brown has observed, to every one that has any practical knowledge of the nature of vegetables, that the strength of the stem in the outset depends, in direct proportion, upon the vigor and power of the set. The set, therefore, ought to be large, rarely smaller than the fourth part of the potato, and if the root is of small size, one half of the potato may be profitably used. At all events, rather err in giving over-large sets, than in making them too small; because, by the first error, no great loss can be sustained, whereas, by the other, a feeble and late crop may be the consequence." Deane says, "The shooting parts exist in a potato in the form of a tree, of which the stock is at the but or root-end; I therefore take care to cut athwart those parts as little as possible; though they will grow any way, the greater length of shooting stem there is in a set, the more strong and vigorous will be its growth at first."

Quantity of sets.—Abercrombie directs, for a plot of the *early and secondary crops*, eight feet wide by sixteen in length, planted in rows, fifteen inches asunder by nine inches in the row, a quarter of a peck of roots or cuttings. For *full-timed and main crops*, a compartment, twelve feet wide by thirty-two in length, planted in rows two feet distant, half a peck. For *field cultivation*, English writers say that it requires twenty bushels and a half to plant an acre with cut potatoes, and thirty-seven bushels and a quarter of whole potatoes.

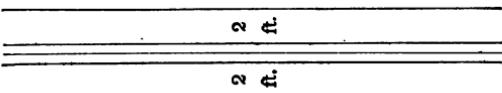
Soil.—"The soil," says Loudon, "in which the potato thrives best, is a light loam, neither too dry nor too moist, but if rich, so much the better. They may, however, be grown well on many other sorts of land, especially those of the mossy, moory, and other similar kinds where they are free from stagnant moisture. The best flavored potatoes are almost always produced from a newly broken-up pasture-ground, not manured, or from any new soil, as the site of a grubbed-up copse or hedge, or the site of old buildings or roads. The best climate for the potato is one rather moist than dry, and temperate or cool rather than hot. Hence the excellence of the Irish potatoes, which grow in a dry, loamy, calcareous soil, and moist and temperate climate; and hence, also, the inferiority of the potatoes of France, Spain, Italy, and even Germany. In short, the potato is grown no where in the world to the same degree of perfection as in Ireland and Lancashire, and not even in the south of England, so well as in Scotland and the north and western counties; all which is, in our opinion, clearly attributable to the climate."

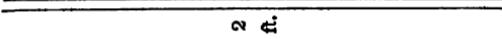
Although a *light* loam is a proper soil for the potato in a cool and moist climate, a strong and *heavy* loam is most suitable for the same root in a dry and hot climate. In a paper read before the New York Horticultural Society, in 1823, by William Wilson, an experienced horticulturist, are the following remarks on this subject:—"Those soils which prove the very bane of the

potato here [in the United States] are just such as prove the most congenial for it in Britain. And so, on the contrary, the best soils by far for producing the driest and best flavored potatoes here, and altogether the most abundant crops, are those of a strong, heavy loam." These assertions are corroborated by a number of experiments, mentioned in the paper from which they are extracted. Mr. Buel, of Albany, likewise asserts that "the best potatoes are grown upon cold, moist, but porous and rich soils."—*Am. Farmer*, vol. ix, p. 409.

Methods of planting.—These are various. If the land is rough, hard, or stony, the common mode of planting in hills is, perhaps, the most expedient. But if it be somewhat mellow, drills are to be preferred. Dr. Cooper says, "If your soil is stiff and wet, plow it in ridges; if sandy and dry, plow it flat. Plow it deep. Plant your set's in drills marked out by the plow or the hoe. The plants should be dibbled in, six inches deep, on long dung, scattered not sparingly along the drills, then covered with about four inches of mould.

The drills should be in threes  one foot apart; the plants should be eight inches apart, with an interval on each side of each set of three drills of two feet, which will admit of horse-hoeing between the sets of drills, and of hand-weeding between each drill.





To have a good crop, you must not spare dung, or spare labor in weeding. Some persons prefer sets of four or five drills instead of three, or, where horse-hoeing is not convenient, the intervals may be reduced to one foot between each set of drills, for the convenience of hand-weeding; but, upon the whole, the method here first proposed is as good as any. Forty loads of dung per acre will pay better than a less quantity.

"If small potatoes are wanted for feeding, the sets may be at six inches apart, and the rows at nine inches; but the method first here proposed admits, what is essential, accurate weeding, and sufficient air to circulate between the plants."

Deane says, the sets may be either in single rows, three feet, or double, one foot apart, and from seven to nine inches asunder in the rows.

"An expeditious way of planting potatoes is as follows:—After the ground is prepared, by plowing and harrowing, cut furrows with the horse-plow forty inches apart; drop the sets in the furrows; then pass the plow along the back of each furrow, which will throw the earth of both furrows upon the sets; and afterwards level the ground with the back of the harrow, or with a harrow that has short tines; but it is of no great consequence

whether it be leveled at all. Another method of planting is, to plow the ground plain, keeping the furrows straight and regular, and drop sets in every third or fourth furrow. But before this is done, the ground should be plowed and made level and fine with the harrow."

A writer for the *N. E. Farmer*, vol. ii, p. 331, gives the following as "an easy and cheap method of raising potatoes:—On an even and smooth piece of mowing, or pasture land, make deep, single furrows, with a plow, at three feet distance. Fill these furrows with rye [or any other] straw, and drop your potatoes six or eight inches apart on the straw. Then, with a hoe, cover the potatoes by turning down the plowed furrows upon them. They will require no more attention till they are grown. No hoeing will be necessary. The same land may be improved as a pasture for sheep, as those animals will not eat, nor materially injure the tops of the potatoes."

The *after-culture* of potatoes consists in harrowing, hoeing, weeding, and earthing up. All potatoes require to be earthed up; that is, to have at least one inch in depth of earth heaped on their roots, and extending six or eight inches round their stem. The reason is, that the tubers do not, properly speaking, grow under the soil, but rather *on*, or just partially *bedded* in its surface. Potatoes should, generally, be hoed three times, though twice will do in ground not infested with weeds. The last hoeing should be finished before the plants are in blossom; otherwise the plants will be apt to form a second set of roots, which will not have time to come to maturity, but will rob those first formed of their nourishment. If weeds are prevalent, they should be cut up or pulled out, but the plants should not be earthed up in that stage of their growth. Plaster of Paris, well pulverized, and applied to the leaves, has a beneficial effect on potatoes.

Pinching off the blossoms.—It is now generally admitted, that a certain advantage, in point of produce, is obtained by pinching off the blossoms as they appear on the plants. The fact has been repeatedly proved, and satisfactorily accounted for, by Knight, who imagines that it will add an ounce in weight to the tubers of each plant, or considerably above a ton per acre.

Gathering the crop.—It is believed that cultivators are apt to err by gathering their potatoes too early. The roots continue to grow larger and better after the tops have attained their full growth. The Hon. O. Fiske, of Worcester, in an address to the Worcester Agricultural Society, says, "Nature has not accomplished its maturation at the period when the vines decay, and the farmer believes it to be ripe. It seems probable that the earth, by some unknown process, perfects its qualities after it has attained its growth. That potatoes which have remained the whole season in the earth are more farinaceous, has been ascertained." It may be stated, as a general rule, that potatoes succeed best when planted early and dug late. But it is more advisable to harvest them before the occurrence of those soaking rains which generally precede the setting in of winter.

A mode of taking part of a crop is mentioned:—‘ Having ascertained that some of the tubers have attained an eatable size, go along the rows, and loosen the earth about each plant with a blunt stick, taking two or three of the largest tubers from each, and returning the earth carefully.’

The most expeditious way of gathering a potato crop is, first to run furrows on each side of the rows, and then a deep one in the middle, which turns up most of the roots to the surface, for the purpose of picking up by hand. In this way, however, we should apprehend some waste, and should not advise it, except where potatoes are plenty, and labor scarce. A hoe with prongs, such as is sold at the agricultural warehouses generally, is, probably, the best implement for gathering potatoes.

Securing the crop.—Mr. Buel, of Albany, says, “There are many erroneous notions, in regard to the culture and treatment of the potato, which every class in society have an interest in exploding, as the root has become a necessary food for every family.” These errors consist in supposing “1st. That potatoes should be grown on a dry, warm soil. 2d. That they should be dried in the sun, or washed, to render them pleasant to the eye. 3d. That they should be kept warm and dry during winter, to fit them for culinary uses. 4th. That they should be of large size.” In contradiction to these popular opinions, he asserts, “First, that the best potatoes are grown upon cold, moist, but porous and rich soils. Second, that it were better the sun never should shine upon them—that they should be housed with all the dirt that adheres to them—that it is beneficial to add more dirt in the bin or cask, to exclude external air as much as possible. And, third, that their surface should be kept moist, and the atmosphere, which surrounds, as little above the point of freezing as possible.”

Potatoes may be kept during winter in a cellar, free from frost, or in pits or caves in the field. In the latter case, they must be so situated on a dry knoll, or the side of a hill, as to be secured from the possibility of the pits being pervaded by water; and they must be so covered, first with straw and then with loam, as to prevent the intrusion of frost. They may, likewise, be placed in barrels, casks, or boxes, and if packed in moist sand, or the loam of the field in which they grew, they will be preserved better than in almost any other situation. If they are exposed to the sun and air till the upper side acquires a green color, they become poisonous.

Use.—The use of the potato, as an article of diet both for man and beast, is probably more extensive, and more common, than that of any other vegetable production. From having no peculiarity of taste, and consisting chiefly of starch, it approaches near to the qualities of the flour of grain; “and for this reason,” says Loudon, “it is the most universally liked, and can be used longer in constant succession by the same individual without becoming unpalatable, than any other vegetable, the seeds of grasses excepted.” Neill

observes, "so generally is it relished, and so nutritious is it accounted, that, on many tables, it now appears almost every day in the year."

An Essay on the *Solanum Tuberosum*, by H. C. Worsham, from the *Philadelphia Journal of the Medical and Physical Sciences*, gives the following summary view of the excellent qualities of this superlative root:—"Having its origin in a warm climate, it was supposed to be intolerant of cold, and upon that account incapable of cultivation in a more northern clime. But experience has shown the contrary, and the potato is naturalized almost in every region. With the lower classes of people, it is one of the greatest blessings which the soil produces, forming 'flour without a mill, and bread without an oven'; and, at all seasons of the year, an agreeable, wholesome dish, without expensive condiments. What resources does the potato present to us? Its stalk, considered as a textile plant, furnishes in Austria a sort of flax—when burned, it yields much potash—its apples, when ripe and crushed, ferment, and give spirits by distillation—its tubercles, made into a pulp, are a substitute for soap, in bleaching. Cooked by steam, the potato is a most healthy food. By different manipulations it furnishes two kinds of flour, a gruel and a parenchyma, which may be applied to increase the bulk of bread made from grain. Treated chemically, it is converted into beer, vinegar, spirits, &c."

PUMPKIN.

Cucurbita pepo.—Courge, Fr.—*Kürbis*, Ger.

The pumpkin is a native of India. Loudon says there are six species in cultivation, but gives no description of them. Russell's Catalogue enumerates the following varieties:

Finest yellow family pumpkin,	Mammoth; (which are grown to 226
Connecticut field,	lbs. weight.)
Large cheese,	Seven years, (a fine sort to keep.)

Pumpkins will grow on any kind of soil, which is proper for head-crops, but the land cannot be made too rich for them. The *Farmer's Assistant* thinks they will grow better, when planted by themselves, than when raised, as usual, with Indian corn. The hills, in such case, should stand about seven feet apart each way, and a number of seeds should be planted in each hill, to make allowance for what may be destroyed by insects. It will be well, however, to protect them by frames, covered by gauze, as directed p. 56, under the article CUCUMBER.

Preservation.—Pumpkins may be kept in a cellar, for this purpose, a considerable part of the winter; but the cellar must not be too warm; and care

must be taken not to break off the stems, but leave these attached to them; otherwise they will soon commence rotting, at the places where the stems were broken off.—*Farmer's Assistant*. They may likewise be preserved in mows of hay or straw or in any dry situation, in which they are secure from frost.

Use.—Loudon says of the pumpkin, “Though commonly cultivated in gardens for curiosity, yet, in some of the country villages in England, the inhabitants grow it on dunghills, at the backs of their houses, and train the shoots to a great length over grass. When the fruit is ripe, they cut a hole in one side, and, having taken out the seeds, fill the void space with sliced apples, adding a little sugar and spice, and then, having baked the whole, eat it with butter.—*Neill*. Pumpkin-pie, Abercrombie says, is very common [in Great Britain, and proverbially so in New England.] On the continent the fruit is a good deal used in soups, and also stewed and fried in oil and butter.” Its culinary uses in the United States are too well known to need description; but some may not be aware that “Pumpkins are excellent for fattening horses. They, however, do not relish them at first; and therefore must be kept from feeding till they are hungry, before the pumpkins are offered to them, and let a little salt be first sprinkled on this food; when they will soon grow fond of it, and eat it readily without salt.”

RADISH.

Raphanus sativus.—*Rave*, Fr.—*Rettig*, Ger.

The garden-radish is a native of China, and introduced into England in 1584.

Varieties.—Mr. Russell's Catalogue contains the following:—

Early short-top scarlet, (<i>a superior sort</i>),	Long salmon,
Early frame,	Cherry, or scarlet turnip-rooted,
Long white summer, or Naples,	White turnip-rooted,
Purple-short top,	Violet-colored turnip-rooted,
	Black fall, or Spanish.

Propagation.—All the varieties are raised from seed.

Soil and situation.—The soil should be light and mellow, well broken by digging. A scattering of the smaller growing sorts may be sown among some broad-cast crops of larger growth, such as spinach, lettuce and onion; it may also be drilled between wide rows of beans, or on ground intended to be sown with a late spring crop.

Times of sowing.—“To have a constant succession of radishes at table, the

seeds should be sowed once a fortnight, from April [or the last of March] to August. But in midsummer they sooner grow sticky and strong, than in spring or fall. They must therefore be eaten while they are young. I have had better success with those sown in August than in any other month."—*Deane.*

Seed, process in sowing, and common culture.—"Sow each sort separately; and for a bed four feet six inches by twelve feet, two ounces of seed will be required for the spring sorts, and an ounce and a half for the autumn varieties. All the kinds may be sown either broad-cast or in drills; but the latter is preferable, as allowing the roots to be drawn regularly, with less waste. If you sow broad-cast, it is a good method to make beds four or five feet wide, with alleys between, a foot wide, the earth of which may be used to raise the beds, or not, as the season may make it desirable to keep the beds dry or moist. Avoid sowing excessively thick, as it tends to make the tops run, and the roots stringy. Rake in the seed well, full half an inch deep, leaving none on the surface to attract birds. If you trace drills, let them be, for the spindle-rooted kinds, half an inch deep, and about two inches and a half asunder; for the small turnip-rooted, three quarters of an inch deep, and four or five inches asunder; and for the black turnip or Spanish, six or eight inches asunder, because the root grows to the size of a middle-sized turnip. As the plants advance in growth, thin them so as to leave the spindle-rooted about two inches square distance, and the other sorts three, four, or five, leaving the most space to the respective sorts in free, growing weather. In dry, warm weather, water pretty frequently: this swells the roots, and makes them mild and crisp."—*Abercrombie.*

"This root being liable to be eaten by worms, the following method is recommended for raising them:—Take equal quantities of buck-wheat bran, and fresh horse-dung, and mix them well and plentifully in the ground by digging. Suddenly after this a great fermentation will be produced, and numbers of toad-stools will start up in forty-eight hours. Dig the ground over again, and sow the seed, and the radishes will grow with great rapidity, and be free from the attack of insects. Buck-wheat bran is an excellent manure of itself."—*Farmer's Assistant.*

Use.—"Formerly the leaves were often boiled and eaten; but now the roots are generally employed. These are eaten raw in spring, summer, autumn, and winter. The young seedling leaves are often used with cresses and mustard, as small salad; and radish-seed pods, when of plump growth, but still young and green, are used to increase the variety of vegetable pickles, and are considered a tolerable substitute for capers."—*Loudon.*

"Radishes are esteemed aperient, attenuating, and anti-scorbutic: when eaten in moderate quantities, they are in a certain measure salubrious to persons of strong habit; but are, in general, apt to produce a considerable degree of flatulency in those whose stomachs are relaxed. No radishes, how

ever, ought to be eaten when *old*, or after having been kept some time, as they are then utterly indigestible, and render the breath very offensive."—*Dom. Encyc.*

Dr. Cooper observes, that "Radishes ought to be sown in rich ground, and carefully tended, so as to grow quickly; if not, they become stringy, in which state they are very unwholesome and indigestible."

Seed.—"Radishes that are for seed require much room, as they grow to a large size. For this purpose some of the most thrifty ones should be left standing; or else be transplanted to a place where each shall have as much room as nearly a yard square. The ripeness of the seed is known by the pods turning brown. For this purpose the seeds must be sown early in the spring, because they ripen slowly."—*Deane*.

For forcing radishes, hot-beds, and culture proper for hot-bed productions, should be resorted to. See *Encyc. of Gard.* p. 596.

RHUBARB.

Rheum.—*Rubarbe*, Fr.—*Rubarber*, Ger.

THESE are three species of this plant in cultivation—the *R. rhabonticum*, a native of Asia; *R. hybridum*, also a native of Asia, and *R. palmatum*, a native of Tartary, distinguished by its elegant palmate leaves, and considered as the true Turkey or Russia rhubarb.

Propagation and culture.—"All the sorts may be raised either from seed or dividing the roots. If from seed, which is the best mode, sow in light, deep earth, in spring; and the plants, if kept eight or nine inches asunder, will be fit for transplanting in autumn, and for the next spring. When the roots are divided, care must be taken to retain a bud on the crown of each section: they may be planted where they are finally to remain. When a plantation is to be made, the ground, which should be light and rather sandy, but well manured, should be trenched three spits, or as deep as the sub-soil will admit, adding a manuring of well rotted hot-bed dung. Then plant in rows, three feet wide by two feet, in the rows for the *R. rhabonticum* and *palmatum*, and five feet by three feet in the rows for the *R. hybridum*. No other culture is required than keeping the ground free from weeds, occasionally stirring it, during summer, with a three-pronged fork, and adding a dressing of well rotted manure every autumn or spring, stirring the ground as deep as possible. Some never allow the flower-stalks to produce flowers; and others cut them over as soon as they are done flowering, to prevent the plants from being exhausted by the production of seeds. The former seems the preferable method, as the flower stalks of the plants cannot, like

the leaves, be considered as preparing a reserve of nourishment for the roots.

Blanching.—"The advantages of blanching the stalks of rhubarb, for culinary purposes, have been pointed out by T. Hare, Esq.—*Hort. Trans.* vol. ii. 'These are two-fold, namely, the desirable qualities of improved appearance and flavor, and a saving in the quantity of sugar necessary to render it agreeable to the palate, since the leaf-stalks, when blanched, are infinitely less harsh than those grown under the full influence of light, in an open situation.' It may either be blanched by earthing up the roots early in spring, or earthen pots may be used, as in blanching sea-kale.

Taking the stalks.—"Remove a little earth, and, bending down the leaf you would remove, slip it off from the crown without breaking, or using the knife. The stalks are fit to use, when the leaf is half expanded; but a larger produce is obtained by letting them remain till in full expansion, as is practiced by the market-gardeners. The stalks are tied in bundles of a dozen and upwards, and thus exposed for sale.

To save seed.—"Leave one or two of the strongest flower-stalks to perfect their seeds, which they will do in July and August.

Use.—"The two first species are cultivated entirely, and the third, in gardens, principally, for the petioles of the root-leaves, which are peeled, cut down, and formed into tarts and pies in the manner of apples and gooseberries. The *R. hybridum* affords the most abundant and succulent supply for this purpose."—*Loudon.*

RUE.

Ruta graveolens.—*Rue*, Fr.—*Rute*, Ger.

Tree is an under-shrub, an evergreen, which prefers a light soil, and is easily propagated by cuttings or seeds. Mr. Armstrong says, "its beauty is much increased by lopping the branches close to the earth every fourth year."

Use.—Boerhaave recommends the leaves of rue as of great service to persons of cold, phlegmatic habits; as they quicken the circulation, dissolve viscid or tenacious juices, remove obstructions, and promote the fluid secretions. Mr. Wilson, in his *Economy of the Kitchen Garden*, says, "The most effectual remedy for expelling worms, that has ever come under my observation, was effected by an infusion of the tops of rue, given in gin to the patient, in the morning, fasting."

SAGE.

Salvia officinalis.—*Sauge*, Fr.—*Salbey*, Ger.

Sage is a native of the south of Europe. Its varieties are—

The red,	The green,
The broad-leaved, or balsamic,	The small-leaved green, or sage of virtue

Estimate of sorts.—“The red is the principal sort in culinary use, having the most agreeable and the fullest flavor; the green is next in estimation with the cook; but the small-leaved is generally preferred to those to eat as a raw herb, and for decoctions; while the broad-leaved, balsamic species, is the most efficacious in a medical way, and is also a tea-herb. However, any of the sorts may be occasionally used for these alternate purposes.

Culture.—“They are all propagated alike, by seeds or suckers, and by portions of old roots, and grow well in any soil not positively wet. Till three or four years old, they have a healthy and agreeable appearance, forming full and regular tufts; but, after this period, they lose the central branches, and even become ragged and broken at the edges. The treatment already suggested for rue might be useful for sage. Under it, the roots would probably renew their vigor, and throw out new and healthy shoots; but of this theory we have no experience.”—*Armstrong*.

Use.—“The leaves are used in stuffings and sauces, for many kinds of luscious and strong meats, as well as to improve the flavor of various articles of cookery. The decoction called sage-tea is usually made from one variety, the small-leaved green, or sage of virtue; but any of the others are equally fit for this purpose.”—*Loudon*.

SALSIFY, or OYSTER PLANT.

Tragopogon porrifolius.—*Salsifis*, Fr.

The salsify is a hardy biennial, a native of England. The root is long and tapering, of a fleshy white substance; the herb smooth, glaucous, and rising three or four feet high. The leaves resemble those of the leek; the flowers are of a dull purple color, closing soon after mid-day; the seed, as in other species of goat's beard, is remarkable for having attached to it a broad feathery crown.

Culture.—“: resembles a small parsnip in its appearance. It is raised

annually from seeds, and as easily, requiring no more care than the carrot. It bears a tolerable crop.

Use.—"In this country it is parboiled, and then fried either in batter or without. It forms an admirable garnish for boiled fowls or turkeys. In its taste it so strongly resembles the oyster, that, when sliced and fried in batter, it can scarcely be distinguished from it. If our gardeners would introduce it into the market, and our citizens once try it, there would be no danger of its ever failing hereafter to be raised. It is in eating from November to May, precisely the period in which our vegetable market is most deficient in variety."—*John Lowell, Esq., in Mass. Agr. Repos.*

"The stalks of the *tragopogon* may be cut in the spring, when they are four or five inches high, and dressed like *asparagus*, in which they eat very tender and well."—*Rees' Cyclopedia.*

SAVORY.

Satureja.

Two species of this plant are cultivated—the *winter* and *summer* savory.

Winter savory is a hardy under-shrub, a native of the south of France and Italy. The shoots are furnished with two narrow, stiff leaves, an inch long, placed opposite at each joint, and from the base of these a few small leaves proceed in clusters. It produces whitish flowers in May and June.

Summer savory is a hardy annual, a native of Italy. The branches are slender, erect, and about a foot high; leaves opposite, and almost an inch in length. It flowers in June and July.

Culture.—Winter savory is a perennial plant, and is propagated from seeds or slips; summer savory, from seeds only. Both sorts will grow on almost any soil, and it is said that the winter kind grows best on barren soils.

Use.—"Both the summer and winter savory have long been cultivated for culinary and medicinal purposes. Their warm, aromatic, pungent leaves are much esteemed in salads: formerly, they were employed medicinally, with a view to attenuate viscid humors, to dispel flatulency, and to increase the appetite. According to Professor Bradley, this herb, when dry, and put into a bed, possesses the remarkably property of expelling fleas."—*Dom. Encyc.*

SEA-KALE.

Crambe maritima.—*Chou Marin*, Fr.—*Meerkohl*, Ger.

THE sea-kale grows spontaneously on many parts of the sea-coast of Great Britain. The inhabitants watch when the shoots begin to push up the sand and gravel, in March and April, when they cut off the young shoots and leaf-stocks, then blanched and tender, and boil them as greens.

Use.—“The young spring shoots and the stalks of the unfolding leaves, blanched by rising through the natural ground in a wild state, or by earthing up in gardens, are the parts used; and, when boiled, and dressed like asparagus, are not inferior to that vegetable. They form also an excellent ingredient in soups. Sometimes the ribs of the large leaves are peeled and dressed as asparagus, after the plant has ceased to send up young growths. By forcing, sea-kale may be had in perfection from November till May, a period including all the dead months of the year. It is remarked by Nicol, that vegetables are seldom improved by forcing, but that sea-kale forms an exception, the forced shoots produced at mid-winter being more crisp and delicate in flavor than those procured in the natural way, in April or May. Sir George Mackenzie, (*Caled. Hort. M. n.* vol. i, 313,) observes, that sea-kale cannot easily be overdone in cooking, and that, after being well boiled, it should be thoroughly drained, and then suffered to remain a few minutes before the fire, that a further portion of moisture may be exhaled.”—*Loudon*.

John Lowell, Esq., in a communication, published in the *Mass. Agr. Journal*, says, “It is very hardy—grows in any tolerable soil—is perennial, and costs not half the labor bestowed on asparagus. It may be raised from the seed or from the root, and fifty plants, occupying a very small space, will supply a single family. In its taste it resembles the cauliflower. The only labor it requires, is, to cover it with sand or earth, or with pots or boxes in March, so as to exclude the light, and to blanch it, or make it white. If not blanched, it is neither so beautiful to the eye, nor so tender, nor so delicate to the taste, as if blanched. It should be thoroughly boiled, and is better if boiled in milk and water. It should be served up like cauliflowers, with melted butter. It comes in at a season in which our vegetables in this country are very deficient.”

Mr. Armstrong says, “In November, whether your bed has been filled with plants or with seedlings, be careful to cover them with a thick coat of well-rotted dung, and so soon in the spring or summer as you find them pushing through this covering, put over each a garder-pot inverted, having first stopped the bottom holes. The signal for cutting is when the plants have arisen about three inches above the surface.”

SKIRRET.

Sium sisarum.—*Chervis*, Fr.—*Zuckerwurzel*, Ger.

THE skirret is a perennial tap-rooted plant, a native of China. The lower leaves are pinnated, and the stem rises about a foot high, terminated by an umbel of white flowers, in July and August. The root is composed of fleshy tubers, about the size of the little finger, and joined together at the crown or head: they were formerly much esteemed in cookery. In the north of Scotland, the plant is cultivated under the name of *crummock*.

Culture.—This plant grows freely in a lightish soil, moderately good. It is propagated both from seed, and by offsets of established roots. The better method is, to raise seedlings, to have the root in perfection, young and tender.

By seed.—‘Sow between the 21st of March and the 15th of April; a fortnight later, rather than any earlier, for a full crop, as plants raised forward in spring are apt to start for seed in summer. Sow on an open compartment of light ground, in small drills eight inches apart. When the plants are one two inches high, thin them to five or six inches asunder. They will enlarge in growth till the end of autumn; but before the roots are full grown, in August, September, or October, some may be taken up for consumption as wanted: those left to reach maturity will continue good for use throughout winter, and in spring, till the stems run.’

By slips.—‘Having some plants of last year’s raising, furnished with root-offsets, slip them off; taking only the young outward slips, and not leaving any of the larger old roots adhering to the detached offsets; which plant by dibble, in rows from six to nine inches asunder. They will soon strike, and enlarge, and divide into offsets; which, as well as the main roots, are eatable, and come in for use in proper season.’

To save seed.—Leave some old plants in the spring; they will shoot up stalks, and ripen seed in autumn.”—*Loudon*.

Use.—The tubers are boiled, served up with butter, and are declared by Worlidge, in 1682, to be ‘the sweetest, whitest, and most pleasant of roots.’—*Loudon*. The common skirret has an agreeable aromatic flavor, and abounds with saccharine particles: hence it has been conjectured that sugar might be advantageously extracted from the root; and M. Margraff states, that he obtained one ounce and a half of pure sugar from half a pound of this vegetable. In a medicinal view, it possesses diuretic properties, and is in a slight degree stimulant.—*Dom. Encyc.*

SPINACH, or SPINAGE.

Spinacia oleracea.—*Epinard*, Fr.—*Spinat*, Ger.

THE common spinach is an annual plant, but it is not known of what country it is a native. The leaves are large, the stems hollow branching, and, when allowed to produce flowers, rising from two to three feet high. The male and female flowers are produced on different plants: the former come in long terminal spikes; the latter in clusters, close to the stalk at every joint.

Varieties.—Russell's Catalogue contains the following:—

Round-leaved, or summer;	Holland or lamb's quarter;
Prickly, or fall;	New Zealand, <i>tetragona expansis</i> , (a valuable new sort.)
English patience dock, <i>Rumex patientia</i> , (for early greens);	

Times of sowing.—“The round is sown in April—the others from August to September. The prickly is sown in August and September for early spring greens.”—Russell's Catalogue.

Soil and situation.—As the excellence of *spinaceous* plants consists in the succulence of the leaves, almost every thing depends on giving them a rich soil, stirring it frequently, and supplying water in dry seasons. The space they occupy in the garden is not considerable, say a thirtieth part; more especially as some of them, the common spinach for example, often come in as a temporary crop between rows of peas or beans, or among cauliflowers, broccoli, &c.

Seed and process in sowing.—“When raised by itself, spinach is generally sown broad-cast, and two ounces will sow a bed four feet and a half by thirty feet; but in drills, one ounce will sow the same space. In drills it is easier to weed and gather: let the drills be from nine to twelve inches apart. Beds four feet wide, with small alleys, are convenient of access. Let the ground be thoroughly dug. Whether broad-cast or in drills, sow thinly, and rake or earth in about an inch deep.

Subsequent culture.—“When the plants are up, showing leaves about an inch broad, clear them from weeds, either by hand or small hoeing, and thin the plants, where crowded (especially the broad-cast crops), to three inches apart; and, when advanced in growth, every other may be cut out for use, increasing the distance to about six inches, that the remainder may grow stocky, with large spreading leaves. The plants of the early and succession crops attain proper growth for gathering in April, May and June. When the leaves are from two to five inches in breadth, cut the plants clean out to the bottom, or sometimes cut only the largest leaves. But as soon as there

is any appearance of their running to seed, they may be drawn out clean as wanted."

To save seed.—"To obtain seed of the round-leaved, leave a sufficient quantity of established plants in April, May, or June, to run up in stalks; or transplant in autumn some of the spring-sown which have not run. To save seed of the triangular spinach, transplant, in March, some good strong plants, of the winter crop. For large supplies, a portion of each may be sown in February, or the first fortnight of March, to stand wholly for seed-ing. Sow each sort separate. Respecting both sides, observe that they are of the class *Dioecia*, the male and female flowers growing separately, on two distinct plants. When the plants are flowering for seed, the cultivator should examine whether the male plants, distinguishable by the abundant farina upon the blossoms, stand crowded or numerous to excess; in which case he should pull up the superfluous plants, leaving a competency for fertilizing the female blossoms, which else would prove abortive. And when the female blossoms are set, it is best to dispose of all the male plants, drawing them by hand; which will give more room to the females to grow and perfect their seed. The plants rejected may be profitably given to young pigs. The seed ripens in July and August."—*Abercrombie*.

Use.—"The leaves are used in soups, or boiled alone, and mashed, and served up with gravies, butter, and hard-boiled eggs. The leaves may be obtained from sowings in the open ground at most seasons of the year, but chiefly in spring, when they are largest and most succulent."—*Loudon*. "According to the opinion of French physicians, this plant is not only food, but physic, and is hence emphatically called '*Le balai de l'estomac*'—the broom of the stomach—sweeping and deterring every hole and corner of that organ, without giving pain, or in any degree interrupting the ordinary avocations of the persons employing it."—*Armstrong*.

SQUASH.

Cucurbita melo pepo.—*Courge ou Potiron*, Fr.

The squash is a species of the *cucurbita*, and seems to be the link which connects the melon and pumpkin.

"The varieties mentioned in Russell's Catalogue are—

Early bush summer;
Long crook-neck, or bell;
Vegetable marrow;
Acorn;

Commodore Valparaiso, (grows large, and is highly esteemed);
Canada crook-neck; (small, and of superior quality.)

"Squashes, of every kind, may be cultivated as directed for cucumbers and melons—should be sown at the same time, and at similar distances, with this difference, that two plants of these will be plenty for each hill, and that they are easier pleased with soil and preparation than the others."—*M'Mahon.*

Use.—The squash is applicable to all the uses of the pumpkin, and, for many purposes, is superior to that vegetable.

STRAWBERRY.

Fragaria.—*Fraisier*, Fr.—*Erdbeerpflanze*, Ger.

The substance of the following article was written for this work, at the particular request of its compiler, by a gentleman of Boston, whose success, as a practical, is equal to his skill as a scientific horticulturist; and whose liberality in imparting his knowledge, as well as the results of its successful application in introducing excellent varieties of fruits, merits the thanks of the community.

Varieties.—Every year is producing new varieties of this as well as almost all other fruits, from the care and attention which are bestowed on them by the scientific cultivators of Europe, among whom, at the present day, Mr. Knight, the president of the London Horticultural Society, seems to take the lead.

Society owes much to these gentlemen, and they are constantly receiving the reward of their labors from the many and continued testimonies of approbation, which their success calls forth. But their chief gratification is derived from the pursuit itself, which, above all others, is calculated to soothe and tranquillize the mind, and to lead men to "look through Nature up to Nature's God."

The kind most esteemed in England are the pine, imperial, Bostock, Surinam, Bath scarlet, Downton, roseberry, Hudson Bay, large scarlet, musk hautbois, round hautbois, and flat hautbois.

In France, the Bath scarlet is of long standing, and much esteemed. The white, the Alpine, or monthly, and the Chili, are also favorites.

The *Chili* is a shy bearer, but very large when it comes to maturity—is not, I believe, known here: it stands on a stiff, upright, and strong stem, in lieu of a pendulous one, like the Hudson.

The *Downton* is, however, I believe, a large strawberry, and is uncommonly high flavored. There are other new varieties very large, of which I know nothing. The form of the Downton is various; many of them are shaped like a cock's comb, which name it has obtained in some horticultural

works. It was raised from seed by Mr. Knight, at Downton, the name of his estate, and is a very good bearer.

The *roseberry* is, in point of flavor, surpassed by no cultivated strawberry I have seen. It resembles, in form and flavor, the Alpine, but is a better bearer. This last,

The *Alpine*, is a monthly strawberry; it continues in bearing from June until October in this climate—is like the wood-strawberry in form and flavor, but is a shy bearer.

The *scarlets* are all large and fine fruit; the largest variety are fine flavored and very early. They are not very great bearers, but should be cultivated as valuable varieties, as well as for their beauty and excellent qualities.

The *hautbois* is the favorite English strawberry. It is totally different from what is commonly called the *hautbois* in this country. The flat *hautbois* grows generally on the top of the vines—is brown, and greenish white when ripe—fine flavored, pretty good bearer, but difficult to detach from its stalk.

The *round hautbois* is of a dark purple when ripe—is somewhat in form like the common red strawberry, but larger; and the

Musk hautbois is like the preceding—a shy bearer, but very delicious.

The *wood-strawberry* is far before any other in point of flavor, and, if transplanted into gardens, may for two or three years answer very well; and if not too highly manured, preserve their flavor and increase their size. But new plants must be obtained, every two or three years, from the woods, to make new plantations, or they will degenerate.

Soil and manure.—The soil proper for this last mentioned variety, as well as all others, is light, warm, and gravelly; and the manure to be applied should be exclusively vegetable, and not animal manure. The usual practice is to manure the ground with rotten dung, with a view to increase the size and quantity of fruit; but, in doing this, the flavor of the fruit is destroyed in proportion to the richness of the soil. Besides, high manuring produces strong vines and little fruit. Rotten leaves, decayed wood, ashes, in small quantity, mixed with other vegetable substances in a compost heap, will make better manure for strawberries than any animal substance whatever. As the vines which bear this fruit require great moisture to bring the fruit to its proper size, the soil and situation in which they are placed must not be too dry.

Propagation.—The usual time for transplanting strawberry-plants is August. That time is chosen because they have then done bearing, and have made offsets, if the season has been favorable, of strong plants, set from their runners. Plantations made at this season will bear some fruit the next summer. But, if you can get good vigorous plants in May of the preceding season, I prefer to plant then, as it saves a year, nearly, the plants being ready to bear abundantly the next year.

Gardeners have different habits and opinions as to trimming the plants when they are put out. Some cut off all the old leaves, and preserve only the *naissant* leaves in the center of the plant. Others take off the dead or decayed leaves only, and plant with all the old healthy leaves on the plant. This last plan is highly recommended by the Abbé Rozier, but, so far as my experience goes, I have found the first mentioned course best. Many people cut the roots in before they put them into the ground: all dead substances should be cut off, but not the roots. When the plants are put out, they should be kept free from weeds, and the ground should be kept loose about them. If the plants are strong, put but one to form the stools; if weak, put two.

As regards the distance at which plants should be set, cultivators differ. The common red strawberry, which is found in all our gardens, may be put eight inches apart in rows nine inches or a foot from each other, and allowed to form a matted bed of eighteen inches or two feet wide, with a foot-path of a foot wide between them. But the larger and finer sorts should be planted in stools in beds four and a half feet wide, with a path of fifteen inches or more between the beds. In these beds the plants should be set, by a line, fifteen to eighteen inches apart, both ways, taking care to set them in quincuncial order, and to keep them from running together.

The objection generally made to this mode of cultivation is, that the fruit is exposed to be injured by lying on the ground, where it is bruised and covered with dirt every time it rains. This, however, may be prevented by a little care. In some parts of Europe, where moss is plenty, it is collected and put round the stools, so as to prevent the fruit from lying on the ground, and at the same time to prevent the moisture round the plant from evaporating.

In some places, where moss is not to be got, straw is used for the same purpose; hence the English name of strawberry.* But I think that leaves of trees that have been collected in the spring, and kept under cover, are better than either, and particularly the oak-leaf; because, when they are no longer wanted to protect the fruit, and keep the moisture in the ground, they can be dug in round the stools, where they serve as most excellent manure for this delicious fruit.

The strawberry may also be propagated by seed. Knight, in making experiments, with a view of ascertaining whether most of the sorts would not breed together indiscriminately, raised above four hundred varieties, "some very bad, but the greater part tolerably good, and a few very excellent." The fruit of above a dozen sorts was sent to the Horticultural Society [in London] in August, 1818, and found of various degrees of excellence. The seeds, if sown immediately after gathering, will produce plants which will come into bearing the following year.—*Ledon*.

* This name is common in all the northern countries, while in France, and countries south, it is said they take their name from their flavor, or the botanical name *fragaria*.

Use.—The fruit is fragrant, (whence *fragaria*,) delicious, and universally esteemed. It consists almost entirely of matter soluble in the stomach, and neither there nor when laid in heaps, and left to rot, does it undergo the acetous fermentation. Hence it is very nourishing, and may be safely eaten by gouty and rheumatic persons. In addition to its grateful flavor, the subacid juice has a cooling quality, particularly acceptable in summer. Eaten either alone, or with sugar and cream, there are few constitutions with which strawberries, even when taken in large quantities, are found to disagree. Further, they have properties which render them, in most conditions of the animal frame, positively salutary; and physicians concur in placing them in their small catalogue of pleasant remedies. They dissolve the tartaceous incrustations of the teeth. They promote perspiration. Persons afflicted with the gout have found relief from using them very largely; so have patients in cases of the stone; and Hoffman states, that he has known consumptive people cured by them. The bark of the root is astringent.—*Abercrombie.*—*London.*

SUNFLOWER.

Helianthus annuus.

This plant is a native of South America, but naturalized and become common in the United States. It is easily propagated in any common soil, either by sowing the seeds, or by slips or offsets from the roots.

From a paper on the subject of sunflower-oil, in the first vol. of *Trans. Amer. Phil. Society*, it appears that one bushel of seed yields three quarts of oil, and that this quantity of seed is produced from one hundred plants, set about three feet apart, in the same manner that Indian corn is planted. The oil is thin, clear, and of an agreeable taste.

The process for expressing the oil is the same as that of making linseed-oil.

TANSY.

Tanacetum Vulgare.—*Tanaise*, Fr.—*Rheinfarn*, Ger.

TANSY is a perennial plant, which grows without cultivation in Great Britain and in some parts of the United States.

Culture.—Tansy may be propagated in spring or autumn by rooted slips, or by dividing the roots into several sets. Plant them in any compartment

of the kitchen or physic garden, from twelve to eighteen inches asunder. The plant continues for several years, producing abundant tufts of leaves annually. As they run up in strong stalks in summer, these should be cut down to encourage a production of young leaves below on the stem. To have young tansy in winter, plant some roots either in a hot-bed or in pots placed therein, or in a pinery or forcing house, at any time from November to March.—*Abercrombie*.

Use.—“The young leaves are shredded down, and employed to give color and flavor to puddings; they are also used in omelets and other cakes, and were formerly in much repute as a vermifuge.”—*Loudon*.

TARRAGON.

Artemisia Dracunculus.—*L'Estragon*, Fr.—*Dragun*, Ger.

Culture.—This is a perennial plant, which may be propagated from seed, or from slips or offsets, in the same manner that tansy, mint, &c., are cultivated.

Use.—“Tarragon is frequently used in salads, especially by the French, to correct the coldness of other herbs. The leaves make an excellent pickle; they have a fragrant smell and aromatic taste. The use of them in Persia has ever been general, at meals, to create an appetite. The famous vinegar of Maille, in France, owes its superior flavor to this plant, which is now common in Pennsylvania.”—*Dr. Mease*.

THYME.

Thymus Vulgaris.—*Thym*, Fr.—*Thimian*, Ger.

THESE are, according to Loudon, two species of thyme cultivated for culinary purposes—the common and the *lemon* thyme.

Common or *garden thyme* is a native of Spain and Italy. Of this there are two varieties, the broad and the narrow-leaved, besides the variegated, grown for ornament.

Lemon thyme—*T. citriodorus*—is a very low evergreen shrub, trailing and seldom rising above four or six inches in height. It is distinguished by its strong smell of lemon.

Culture.—The plant is best raised from seed. Sow as early in the spring as the season will permit, in a bed or border of light, fine earth, either broad-

cast, scattered thin, and raked in lightly, or in small, shallow drills, six inches asunder. The after-culture is simple, and similar to that of other sweet herbe, such as marjoram, sage, &c. "In soils which are cold, stiff or moist, it does not thrive; its branches become ragged, its leaves few, and its flowers, and their peculiar aroma, feeble and faded."—*Armstrong*.

Use.—"The young leaves and tops are used in soups, stuffings, and sauces. For these purposes, the broad-leaved common is generally preferred; but the flavor of the yellow is much liked in peculiar dishes."—*Loudon*. "All the parts of this plant, but particularly the calyx of its flower, yields an essential oil, yellow and odorous, and highly charged with camphor. In the kitchen, it is used as an ingredient in sauces and stuffings, and in what are technically called *forced meats*."—*Armstrong*.

TOMATO.

Solanum Lycopersicum—*Tomate, Fr.*—*Liebes Apfel, Ger.*

"THIS plant is of the same family with the potato, and, like it, is a native of Southern America. It has several species, two of which fall under our notice as garden vegetables, and are distinguished from each other only by a difference of size. The smaller is held to be the parent plant, and has the advantage of ripening sooner, and better resisting cold weather. To have an early crop, sow the seeds in a dry and warm soil, and sheltered situation, in October, and cover the bed with straw or stable-litter during the winter. For summer and fall use, sow again in May, and water freely. If the soil and situation be favorable, and the culture proper, the product will be great. The distance between the plants should not be less than two feet."—*Armstrong*.

Use.—"When ripe, the fruit, which has an acid flavor, is put into soups and sauces, and the juice is preserved for winter use, like ketchup; it is also used in confectionery as a preserve, and, when green, as a pickle. Though a good deal used in England in soups, and as a principal ingredient in a well-known sauce for mutton, yet our estimation and uses of the fruit are nothing to those of the French and Italians, and especially the latter. Near Rome and Naples, whole fields are covered with it; and scarcely a dinner is served up, in which it does not, in some way or other, form a part."—*Loudon*.

TURNIP.

Brassica Rapa.—*Navet*, Fr.—*Steckriübe*, Ger.

RUSSELL's Catalogue contains the following *varieties*:—

Early white Dutch,	Long yellow French,
Early garden stone,	Yellow Dutch,
White flat, or globe,	Yellow Maltese,
Green round,	Yellow Aberdeen,
Red round,	Yellow stone,
Swan's egg,	Yellow Swedish, Russia, or ruta bags,
Large English Norfolk,	Dedham.
Long tankard, or Hanover,	

The first three sorts are fittest for early, first succession, and main crops. The French turnip, according to Loudon, is of excellent flavor, and is in high repute in France, Germany, and Holland. The Swedish, for its large size and hardy nature, is extensively cultivated in fields for cattle; it is also occasionally raised in gardens for the table, to use in winter and spring.

Seed estimate.—For a seed-bed four feet and a half by twenty-four, the plants to remain and be thinned to seven inches' distance, half an ounce.

Time of sowing.—Make first a small sowing of some of the early sorts in the last fortnight of March or the first days of April, for turnips in May and June; but, as these will run to seed the same season, make a larger sowing about the middle of April. The first considerable sowing may be about the middle or towards the end of May, for roots to draw young about the end of June, and in full growth in July and August. The principal sowing should be about the middle of July. “Doing it on a set day is ridiculous; for a time should be chosen when the ground has the right degree of moisture to make the seed vegetate; and if this should happen a week earlier or a fortnight later than the usual time, it need not be regretted; but the opportunity ought to be embraced.”—*Abercrombie*. They may be sown to advantage in New England as late as the first week in August; and those which are put into the ground so late will be less liable to be injured by insects than when sown earlier.

Soil and situation.—Sand or gravel, with a mixture of loam, produce the sweetest and best flavored roots. It should be made fine, but not too rich, lest the turnips be rank and ill tasted. Ground which has been newly cleared from the forest yields the largest and sweetest roots, and on such spots there is least danger from insects. “Next to new land, swarded ground is to be chosen for a crop of turnips; and the way to prepare it is, to plow it pretty deep in the spring, and fold it by turning the stock for a

good number of nights; for there is scarcely any of our fields sufficiently rich to produce turnips without manuring; and folding hitherto appears to be the best method of enriching the ground for this purpose. It should be well harrowed, as often as once a week, while the folding is continued, to mix the excrements of the cattle with the soil."—*Deane*.

Process in sowing, and precautions against the fly.—"Let the ground be well broken by regular digging, and neatly leveled to receive the seed. Procure bright, well dried seed. At a season when the turnip-fly is not apprehended, the seed may be put into the ground without any preparation, either alone or mixed with a little sand; but in the hot weather of summer, it is advisable to use some cheap and effectual preventive of the fly. It appears from a trial of Knight, at the suggestion of Sir Humphrey Davy, that lime slaked with urine, and mixed with a treble quantity of soot, if sprinkled in with the seed at the time of sowing, will protect the seeds and germs from the ravages of this pernicious insect; but this antidote cannot be conveniently applied unless the sowing be in drills. A yet simpler remedy, found by Mean to be perfectly successful, is, to steep the seed in sulphur-water, putting an ounce of sulphur to a pint of water, which will be sufficient for soaking about three pounds of seed."—*Abercrombie*.

The method of sowing is either broad-cast or in drills. In the former mode, Abercrombie directs to allow half an ounce of seed for every one hundred square feet. Deane says, the quantity of seed for an acre is never less than one pound—more frequently a pound and a half, and sometimes two. In sowing by broad-cast, the seed may be covered by drawing a "light harrow backward, that is, wrong end foremost, to prevent the tines, which are generally set somewhat pointed forward, from tearing up the sods, and burying the seed too deep." If sowed in rows, the drills may be an inch deep, and twelve or fifteen inches asunder.

Subsequent culture.—As soon as the plants have rough leaves, about an inch broad, hoe and thin them to six or eight inches' distance, cutting up all weeds. As the turnips increase in the root, a part may be drawn young, by progressive thinnings, so as to leave those designed to reach a full size ultimately ten or twelve inches apart.

Taking and preserving the crop.—In England they feed the turnips off the ground with sheep, or draw them up for neat cattle, through the winter, as they are wanted; but, in this country, they must be harvested in autumn, about the end of October, or even earlier in some seasons and places, and stored and saved, as directed for preserving other roots. See page 24.

To save seed.—"Some of the best roots of the middling size should be planted early in the spring, in a good spot, free from shade. They should be in rows, eighteen inches asunder, and the ground must be kept clear of weeds till the seed is ripe. Stakes and laths may be needful round the outside, to keep the branches from falling to the ground before the seed is fully ripe."

—*Deane*. “It is preferable, however, to procure turnip-seed, as indeed that of most other vegetables, from the regular seedsmen; as the seed farmers have opportunities of keeping the sorts distinct, which cannot be within the precincts of a walled garden.”—*Loudon*.

Use.—The common culinary uses of the turnip, boiled, mashed, &c., are too well known to need any notice. We shall mention some uses not so common.

“*For feeding horses*.—These, when fed on turnips, are induced to eat the barn-chaff, and other dry food, with a good appetite—are kept healthy, and will work without corn.

“*For feeding cows*.—To make sweet and well-tasted butter from the milk of cows fed on turnips, let the milk vessels be kept constantly clean and well scalded with boiling water, before using. When the milk is brought into the dairy, to every eight quarts mix one quart of boiling water; then put up the milk into the bowl to stand for cream.

“*As a substitute for bread*.—When the dearness of all sorts of corn occasioned many poor people in Essex [England] to make bread of turnips, they took the peeled roots and boiled them in water till they were soft; then, strongly pressing out their juices, they mixed them with their weight of wheat-meal; and adding salt, yeast, and warm water, they kneaded it up as other paste; which, having lain a little while to ferment, they ordered and baked as common bread.”—*Gleanings in Husbandry*.

CALENDARIAL INDEX.

The object of this Calendar is little more than to give brief intimations of work to be performed in a garden, together with some approximation to the time of year in which it should be accomplished. The figures refer to the pages in which further directions may be found relative to the operations adverted to. These directions are intended for the New England States, or about the latitude 42° N. and the vicinity, or a small elevation above the sea.

Allowance should be made for elevation of site, as well as for situation north or south of that degree. But it is not possible, perhaps, to state what that allowance should be with any approach to precision. The nature of the soil, the aspect, the exposure, the forwardness or backwardness, or what may be styled the general character of the season, are all to be regarded; and require the exercise of a sound discretion in the cultivator, not to be restricted by general rules, which are liable to too many exceptions to be noted in this work.

JANUARY.

Throughout New England the temperature of the climate is such as to exclude the cultivator from performing most of the operations of tillage or horticulture from about the first of December to the latter part of March, or the beginning of April. The seeds of knowledge may, however, be sown in winter, and the horticulturist may cultivate his mind when his soil is bound in frozen fetters.

Provide a sufficient quantity of bean-poles, and pea-rods, which you may preserve in a corner of your wood-house, or other place suitable for your purpose. Many people, who neglect to procure these implements in season, are induced, by the hurry of business, to permit their peas and beans to trail on the ground, in which situation they will not produce, especially the tall growing sorts, one third part so many as if they were properly supported by poles and rods. The length of the pea-rods should be in proportion to the sorts of peas for which you intend them, 83. The same kinds of rods, which the tall-growing peas require, will answer for the generality of running kidney beans. The Lima beans will need strong poles, from eight to nine feet high. You may now make preparation for forcing cucumbers and melons, 50, 66.

FEBRUARY.

Manure may be carried into those places where it is needed, left in a heap, but not spread. Wherever and whenever the snow is off the ground, rake together and burn the haulm, or whatever may remain from the last year's crop. Fences should be inspected and repaired, and seeds rubbed out and cleaned. Straw mats for the hot-beds, pales, rails, lattices, or trellises for espalier trees, should be got in readiness. See that your garden

tools are in good repair, and procure such new ones as may be necessary. It is now time to set about procuring and preparing materials for, and forming hot-beds. Clean trees from moss, and protect them against mice and rabbits by whitewashing with lime, or smearing with some composition which is offensive to those vermin. Enter in earnest into the business of forwarding various kinds of seedling plants, by artificial means, so that they can have strong roots, and arrive at some size by the time they would naturally make their first appearance above ground. This may well be done by adopting Mr. Armstrong's method with regard to melons, 64. Attend to your fruit in your fruit-room or cellar, on shelves or in boxes, and, if necessary, pick it over, and cull out whatever is defective; wipe the remainder dry, and pack it away anew. But if it is put down in some sort of grain, dry sand, flax-seed chaff, or, what is probably best of all, pulverized plaster of Paris, you will not need to meddle with it. You may now, perhaps, begin to force asparagus in hot-beds, 14. Sow under glass cases, for transplanting or otherwise, radishes, carrots, small salads, peas, beans, &c. Protect choice plants, which may show a disposition to vegetate, by matting, litter, cases of wicker, old bark, and other proper means.

MARCH.

Lettuce may be sowed in the open ground as soon as frost will permit, 62. It may be sowed between vacant rows, intended for other plants, and pulled out for use before the other plants are large enough to be encumbered by it. Early peas cannot be planted too soon after the ground is thawed, 82. Radishes may be sowed as soon as the seed can be raked in. Sow cabbages, cucumbers, melons, cauliflowers, squashes, &c. in hot-beds, under glasses, &c., 49, 61, 104. Dig up vacant ground, applying manure. Dress borders, and clip edgings of box. Clean, relay, or make new gravel walks. Attend to, and turn over compost beds. Dress asparagus beds, or make new ones the latter part of this month or the beginning of April, 14. Select from your cellar the best cabbages with heads, and set them in some proper place to stand for seed. Set the different kinds remote from each other, to prevent their mixing at the time of blossoming. Likewise, set some of your best cabbage stumps for early salad and greens. If the ground is moist, set shallow; if dry, place them about six inches deep. Small salading, such as cresses, 48, mustard, 70, 71, radish, 95, &c., when a constant supply is wanted, should be sown once a week or fortnight. Celery for an early crop may be sown in this month, though the principal sowing had better be deferred till April, 43. Artichokes should be sowed as early as the season will permit, 12; and horse-radish.

APRIL.

In the Eastern States generally, and in those parts of the Middle States where the ground is naturally somewhat moist and heavy, this is the month for sowing the principal garden crops. Sow the hardy kinds as soil, site and season will permit, that the plants may be firmly established before they are overtaken by the heat and drought of summer. But a stiff and moist soil should never, on any account, be dug, plowed or harrowed when it is so wet as to be clammy and adhesive. On the other hand, a light, sandy soil will be meliorated by being hoed, or otherwise wrought on while moist.

"Earth of a consistence that will hold water longest *without becoming hard when dry*, is that of all others the best adapted for raising the generality of plants in the greatest perfection. The great art of improving sandy and clay soils is to give to the former such dressings of clay, cow-dung, and other kinds of manure, as will have a tendency to bind and make it more compact, and, consequently, more retentive of moisture; and, to the latter, coats of sandy earth, pond mud, horse dung," &c.—*M' Mahon.*

Sow artichokes, 11, asparagus, 14, horse, or garden beans, 17, kidney beans, 19, beets, 22, the last of this month, or the first of next, Borecole, 26, Brussels sprouts, 29; sow cabbage seed, 30, set out cabbage plants, 31, sow cardoons, 37, carrots, 38, cauliflowers, 41, celery, 43, coleworts, succession-crops of cresses, 48, cucumbers in hollow turnips placed in a hot-bed, 53, or in pots under hand-glasses, &c.; propagate fruit-trees by cuttings. You may set out a few dandelion plants in your garden, 57, and let us know how you succeed in attempting to domesticate them. Look out for, and destroy insects; sow a little early summer endive, 58, fennel, 59; propagate garlic, leeks, 60, lettuce, 61, marjoram, onions, 72, parsley, 78, parsnep, 79, successive crops of different sorts of peas, 82, potatoes, 87, radish, 95, sage, 99, salsify, 99, savory, 100, sea-kale, 101, skirret, 102.

MAY.

You may now sow most or all the articles mentioned in the Calendar for the last month, either as first or succession-crops. Plant your cucumbers, 49, and melons, 63, for a general crop in the open ground about the 20th; also, squashes, pumpkins, and gourds; likewise Indian corn for an early garden crop. Plant your bush-beans and pole-beans, for your principal crop, at any time when most convenient during the month, 17. It is recommended to set the poles, and then plant the beans round the poles. Weed and thin your advancing crops of radishes, 95. Transplant radishes for seed, 95. Sow succession-crops of spinach, 103. Carrots may be sown in the Eastern States in the forepart of the month, 38. Weed and thin beets, carrots, parsneps, onions, early turnips. Sow more turnips of the early kinds for crops in succession. Such sowing is best performed in the first week of the month, in order that the roots may have time to grow to a good size before they are overtaken by summer heat and drought. Early cauliflower plants, as they advance in growth, should have earth drawn up about their stems, and be watered in dry weather. You will do well to sow peas for succession-crops, at least twice this month, 82. You may set out or transplant early lettuce. Sow as many of the sorts of small salading as you may need for market or family consumption. Now is, perhaps, as proper a time as any in the year for pruning fruit-trees. The season for pruning is immediately before, or commensurate with, the rising of the sap. Let your ducks have constant employment as *vermin pickers*. Attack insects by sprinkling over them, by means of a syringe, watering-pot, or garden engine, simple water, soap suds, decoctions of tobacco, of elder, &c. &c.

JUNE.

Melons and cucumbers, which have hitherto been protected by glasses or paper frames, may now be exposed to the open air. If the season be at all dry, your vegetables, particularly your cucumbers, will need water. [See

Introduction.] Be careful to keep your crops clean, by hand-weeding and hoeing. About the last of the month, you may sow crops of melons and cucumbers for pickling. Thin forward melon plants, leaving only two or three in a hill, 65. Attend to your cabbage and cauliflower plants, as well as your beans, &c., and see that they are not destroyed by the cut worm. "If you perceive any plants injured, open the earth at the foot of the plant, and you will never fail to find the worm at the root, within four inches. Kill him, and you will save not only the other plants of your garden, but probably many thousands in future years." Hoe and bush your late peas; plant more potatoes, succession-crops of kidney beans, 19, peas, 82, small salads and lettuce every week or ten days. "Thin out and earth up all your plants; remember that frequent hoeing is both rain and manure to your vegetables in dry weather." Celery plants may now be planted out in trenches, 43. When the plants have grown to the height of eight or ten inches, draw earth about them, breaking it fine. This should be done in dry weather, being careful not to bury the heart. Plant out cabbages, cauliflowers, broccoli, &c., in moist or cloudy weather, but not when the ground is wet and heavy. Cut and dry such herbs as have come to maturity, for winter use. You may as well dry and pulverize some kinds, if you choose. Look over your grafted trees, and you may ascertain whether the scion has united with the stock. Take off the clay, and loosen the bandages of such grafts as have succeeded, and tie weak grafts and dangling shoots from budded stocks to neat stakes. Rub off all superfluous, irregular, or ill placed shoots or suckers. Where your fruit trees appear to be overloaded with fruit, pick off a part, and carefully gather all that which has fallen and give to your swine, in order to destroy the curculio.

JULY.

Clean and prepare your ground where your early crops of peas, spinach, cauliflowers, and cabbages grew, and all other vacant spots, to cultivate thereon such plants as are proper to supply your table, in autumn and winter, with later-grown productions. You may continue to sow crops of small salading every eight or ten days, as directed in former months; but they should now be sown on shady borders, or else be shaded by mats, occasionally, from the mid-day sun, and frequently watered, both before and after the plants appear above ground. You may now plant out your celery plants in trenches, 43, unless you have already performed that operation, as directed last month. About the middle of July, and from that time to the end of the first week in August, you may sow turnips, 111. Thin and transplant such lettuces as were sown last month, and sow more lettuce-seed in the beginning, middle, and last week of this month, in order to have a constant supply for the table, 61. Sow likewise radishes, 95, and in the last week of this month a good crop of spinach may be sown for autumn use; it will not then be so liable to run to seed as in the preceding months. It is a good practice to sow early kinds of cabbages, 30, about this time, for a supply of young greens during autumn. Collect all kinds of seeds as they come to maturity, cutting off or pulling up the stems with the seeds attached, as they ripen. Spread them in some airy place under cover, turning them now and then, that the seeds may dry and harden gradually, and be careful not to lay them so thick as to hazard their heating and fermenting. When they are sufficiently dry, beat out and clean the seeds, and deposit them in bags or boxes.

till wanted. Give water to such plants as require it, but let this be always done in the evening, that it may be of use to the vegetables before the sun shall cause it to evaporate.

You may now inoculate or bud your fruit-trees, and, where it can be done without inconvenience, it will be well to turn swine into your orchard to eat the fallen and decayed fruit, and thus destroy the insects which it contains. If, however, this cannot well be done, or you have not swine in sufficient numbers to devour all your fallen fruit, it will be well to gather and carry it from the ground before the insects, which inhabit it, make their way into the earth, and make you destructive visitations another season.

AUGUST.

Keep all your crops clear from weeds, using the hoe where safe and convenient; otherwise make claw-hoes of your hands, and weed-extracting nippers of your thumb and fore-fingers. Pull up the haulm of peas, beans, &c., and remove it to your compost bed; bury it between rows of plants, or throw it, together with all weeds, &c., to your swine, that your premises may have a neat appearance. Cut such herbs as are now in flower, to distill, or to dry for winter use, being careful to do it when they are dry, and spread them in a dry, shady place; for, if they are dried in the sun, they will shrink very much, turn black, and prove of little value. Your dung-hills and compost-heaps should, during the summer months, be kept free from weeds, for if the seeds are permitted to ripen and fall, the dung when carried into the garden, will disseminate weeds innumerable. Attend to plants set out for seed, and put stakes to such as need support. This month, as well as the latter part of July, is the proper season for inoculating or budding. M'Mahon says, "Cherries, plums, or any other fruit-trees, may be budded in August, if the bark parts freely from the stock. Pears ought to be inoculated the early part of the month, or while the sap flows freely; but the peach, nectarine, almond, and apple, will succeed any time between the first of August and twentieth of September, provided the stocks are young and vigorous."

Preserve peach, plum, cherry, and apricot stones, &c., to sow for raising stocks to bud and graft on. These may either be sown immediately, or kept in common garden earth, or moist sand. But it will be necessary to sow them before the stones open, and the radicles begin to shoot; otherwise many of them will be broken or torn in the process of sowing. Every day they are kept out of ground is an injury to them; and if they remain in a dry state till spring, very few will vegetate till a year after, and the greater number not at all. Continue to collect and preserve seeds as directed last month. Sow onions to stand over winter, 72; likewise, cauliflowers, 41.

SEPTEMBER.

Hoe and thin your growing crop of spinach, 103. In the first week of this month, sow a full crop of the prickly-seeded kind for winter and spring use, 103. And, at the same time, you should sow a good supply of the early short-top, white and red turnip-rooted and salmon radishes, 95. Earth up celery as it advances in growth, but be careful to avoid covering the hearts of the plants. This work should be done in a dry day. See that you do not bruise or injure the stalks; for if they are crushed or wounded, they will be subject to rot. Gather all kinds of seeds as they ripen, which may be

necessary for the ensuing season. Towards the latter end of the month, you may safely transplant all kinds of hardy perennial, aromatic, and medicinal herbs, which will thus become well rooted before winter. This work should, if possible, be done in moist weather. Pull and preserve your ripe onions, 72, and sow more to stand over winter, 76. Protect your grapes and other fruit against wasps. This may be done by hanging up phials of honeyed or sugared water near the fruit you wish to defend from their attacks, in which many of the tiny predators will be caught and destroyed. Thoroughly clean from weeds all the seed-beds and young plantations of trees, shrubs, &c. Gather cucumbers and mangoes for pickling before they spot. Sow cauliflowers about the 20th, 41.

OCTOBER.

The young cabbage plants, produced from seeds sown last month, and intended for early summer cabbages, should be transplanted into the beds in which they are to remain during winter, 30.

Prepare a bed for them, the width of your garden frame, in a warm, well-sheltered place, where the sun has the greatest power; yet be careful never to admit the direct sunshine on the plants, when in a frozen state. When you have no glasses, the plants may be protected during winter by boards or mats, giving air in mild weather. Cauliflowers sown in August or September should be raised carefully, and protected, during the cold season, in garden frames, with boards, mats, &c., or perhaps some may survive if set in open borders, or they may be set in pots, 42. Weed and thin your late crops of spinach, leaving the best plants at the distance of three, four, or five inches asunder, 103. Early in the month, hoe and earth up the late-planted crops of cabbages, broccoli, and borecole, cauliflowers and other plants of the brassica genus. Towards the end of the month, if the stalks of asparagus turn yellow, cut them close to the earth; clear the beds and alleys from weeds, and carry them with the stalks off the ground. It will then not be amiss to cover the beds and alleys with old litter, well trodden down, to be removed in the spring. Or you may apply manure now, instead of in spring, as you judge best. Cut down all decayed flower stems, and shoots of the various kind of aromatic, pot and medicinal herbs, close to the plants; clear the beds from weeds and litter, and carry the whole off the ground. Onions may now be planted out to raise seed, instead of setting them in the spring, as directed p. 76. The seeds of dill, skirret, rhubarb, sea-kale, may now be sown; for, if kept out of ground till spring, many of them will not vegetate till a year after; but when sown in October or November, if the seeds are fresh and perfect, they will vegetate in the April following. Begin to take up and secure potatoes, 87, beets, 22, carrots, parsneps, turnips, Jerusalem artichokes, &c., 13. Give a general hoeing and weeding to all your crops, and carry the weeds out of the garden. Such spaces of ground as are now vacant should be dunged, dug, or trenched, and thus have the advantage of a winter fallow, and that exposure to frost, which will reduce it to fine tilth, and destroy worms, the larvae of insects, &c. The old beds of strawberries should, some time in this month, be cleaned from weeds, and the vines or runners taken off close to the plants. Then, if there be room, loosen the earth to a moderate depth between the plants, taking care not to disturb the roots. And if the plants are in beds with alleys between, line out the alleys, and let them be dug a moderate depth, breaking the earth very fine, and

spreading a sufficiency of it over the beds, between and round the beds, making care not to bury their tops. A slight top dressing of compost, such as described p. 286, may now be applied. It may now be time to gather and preserve apples and pears, though it is best to let them remain on the trees as long as they are safe from frost. If you are not apprehensive of the depredations of mice, rats, squirrels, &c. you may sow the stones of plums, peaches, nectarines, apricots, &c.; or you may, if you think it more prudent, preserve them in sand till March or April.

NOVEMBER.

Gather from your garden, before the hard frosts commence, all those fruits of your labors, which you wish to preserve through the winter, not forgetting winter squashes. Take up and preserve cabbages, as directed p. 35. Preserve your celery, 44. You may gather a part in dry weather, and pack it in boxes in dry sand, and place the boxes in a warm cellar, leaving the tops and leaves open to the air. Those cabbage and cauliflower plants, which you mean shall stand through the winter in frames, should, during the continuance of mild weather, be allowed every advantage of free air, to insure them, by degrees, to bear cold. Take the glasses off entirely, in the warm part of the day, but place them again at night, and in wet or cold weather. If your beets, turnips, parsnips, &c. are not secured, take them up, and preserve them, as directed last month. You may now sow the seeds of rhubarb, sea-kale, skirrets, parsnips, and many other kinds, which are somewhat slow in vegetating, and they will come forward early, and grow vigorously in the spring. In the beginning of this month, you may manure and trench the ground which is intended for early crops, and, if it be of a stiff, heavy nature, lay it up in ridges, to receive the benefit of the winter frosts. You may now sow early peas, to come up in the spring, if you can preserve them against mice, 84. This is, perhaps, as eligible a period as any for the planting of apple-trees, and other fruit-trees, or sowing seeds in a nursery. Lay light litter of some kind a good thickness over the roots of the more tender and choice kinds of trees and shrubs, to protect them from frost.

DECEMBER.

The severity of the weather in this month generally allows but little to be done in the Middle and Northern States. Should the season permit, you may perform any of the operations directed for last month, which remain unfinished. If the weather continues open, carry out and spread manure, and trench the ground, as directed for the last month. Provide from the woods, &c. pea-sticks and bean-poles, of suitable lengths and sizes, as directed in January. Collect all your old sticks and poles, which are still fit for use, and place them together with your new ones under cover, to prevent their rotting. Be careful to shut the frost out of the apartments in which you have stored your fruit for winter and spring use. Examine the fruit which you have on shelves in cellars, once every ten days, and take away any that you find tainted. Repair all decayed trellises, espaliers, &c. Procure stakes and other materials which may be wanted in a more busy season.

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